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GEELONG NATURALIST

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JOURNAL OF THE GEELONG FIELD NATURALISTS CLUB

FIX TO FRONT CO ER

WANDERER BUTTERFLY

CONTENTS

Page
Editorial 1
Annual Report 3
Three Tails - By Duncan MacKenzie 5
Shark Attacks - By Duncan MacKenzie 5
Treasurer's Statement 6
Devotion to an Injured Swift - By Jack Wheeler 8
The Wanderer Butterfly - By Trevor Pescott 9
A Rare Plant at Lal Lal - By Jack Wheeler 11
Wedge Tailed Eagle - By Duncan MacKenzie 12
Historical Iron Mine at Lal Lal - by Jack Wheeler 15
Proposed Bellarine National Park - by Jack Wheeler 16
Greenhoods - by Voi Boardman 18
At Random 20
Junior Section 22

The Statements and the opinions contained in the papers published in this Journal are the responsibility of the respective authors.

MEMBERSHIP

Membership of the G.F.N.C. is open to any person interested in Natural History. The "Geelong Naturalist" is distributed free to all members, and the Club's reference and lending library is available.

Subscription Rates are:
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COVER PHOTOGRAPH

A Male Wanderer Butterfly hangs to its chrysalis case after emerging.
Photo by T. Pescott.

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GEELONG NATURALIST

Vol.1 No.1 April 1964

EDITORIAL

The appeal of wild life to some people is an aesthetic appeal: to others it is a cultural appeal and absorbing subject for study and research: to many it is the delight of observing life as it was in the beginning, the call of the wild: to many more the appeal is just healthy relaxation from the chores and cares of daily life.

But whatever the individual appeal may be, there is no doubt that the members of our Club hold as wide and diversified a number of interests in Natural History subjects as any other Club of its kind in Australia. This fact is brought into realism by the continued and widening interest Members have taken in lectures, excursions, photography, scientific study, etc.

It is to the Members credit that in such a short space of time our Club has gained recognition in the Natural History field, and membership is already on the brink of the 200 mark. Your Committee felt that due to this fact we were in need of a Club Journal to further widen Members' knowledge and interests, and to allow Members to pass on to others their ideas and thoughts.

The "GEELONG NATURALIST", which will be published quarterly, is then, another milestone reached in the history of our young Club. A Committee has been set up to publish the magazine and its members comprise Miss Voi Boardman, Mr. Jack Wheeler, Mr. Trevor Pescott and myself. As this is the first issue, I feel it would not be out of place to explain the layout.

First the Cover. We have "gone modern" here, and feel that the type style and design lends itself to an interesting and striking cover. Each issue the photograph and color block will change.

After the Editorial (a necessary evil) come the main articles. Then follows "At Random" which is envisaged as one of the main sections of the magazine. We hope to keep this section lively and informal, and we feel that most Members must have something to report or discuss that will be of interest to others.

The "JUNIOR SECTION" comes next and having seen from essays, excursions, etc., that the Club contains many bright and keen-minded Junior Members, we feel that a section devoted to these Members would not go astray. So Juniors, the Editor would like any articles on trips, field outings, notes, observations and questions that you may have.

Finally, we must remind members that ultimately the quality of "GEELONG NATURALIST" must depend on its contributors; contributions small and large are always welcome, and we urge all Members who feel they have something interesting to say to have a go: if in difficulty our editorial advice is always at their disposal.

Now that we have started the new financial year, we ask all members to make renewed efforts to support the Club and its work by paying their subscriptions as early as possible. The basis of all success is effort and the fuel that turns effort into productive activity is money. For the Club to function on a sound and objective basis we need the help and backing of each and every member in all spheres.

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VISITING AMERICAN ORNITHOLOGISTS

Three visiting American ornithologists, Dr. Radcliffe, a leading Methodist Preacher from New York, his wife, Mrs. Radcliffe, and Mrs. Weaver, were, on March 15th, taken to the Metro. Farm at Werribee by Melbourne ornithologists.

They were most impressed with the bird life in this area and Mrs. Weaver who, throughout the world, has observed almost 2,000 bird species, added four new species to her tally, namely the Red-capped Dotterel, Little Stint, Double-banded Dotterel, and the Curlew Sandpiper. Mrs. Weaver had been searching for Curlew Sandpipers for thirty years, a bird which she says is now rare in America. The party had left New York a month previously and did birding at Honolulu, Fiji and New Zealand before coming to Australia. In New Zealand they had covered 2,300 miles for only seventy bird species but here in Australia with visits to Sherbrooke Forest, Phillip Island, Yellingboe and Werribee, their bird total here was well over 100 species. From Victoria, the party went to Queensland where visits were made to Lamington Nat. Park, Brisbane and the Atherton Tableland. They hope to arrange further visits to Australia.

GEELONG FIELD NATURALISTS CLUB

THIRD ANNUAL REPORT

In this, the third year of the Geelong Field Naturalists Club, progress has been made in the Club's many activities. The membership continues to increase and a welcome is extended to all those who have joined the Club throughout the past year.

This Annual Report marks the first edition of the Journal of the Geelong Field Naturalists Club and congratulations are extended to Mr. MacKenzie for his contribution towards its publication.

At the Second Annual Meeting the Constitution of the Geelong Field Naturalists Club was formally adopted and has since been circulated to all financial members.

COMMITTEE: Mr. Trevor Pescott was re-elected as President of the Club at the Second Annual Meeting and sincere thanks and gratitude are extended to him for his untiring work for the Club's benefit. The Committee meets monthly in the Herne Hill Methodist Church Hall, and from these meetings business is brought to the notice of the General Meetings.

GENERAL MEETINGS: As in previous years, the monthly General Meetings are held in the Reformed Presbyterian Church Hall, Fenwick Street. Throughout this year an increased number of interesting exhibits and specimen for identification have been on display at these meetings. Interesting and informative lectures have been given each month most of these being illustrated with coloured slides.

Vice President of the Club, Mr. Jack Wheeler, gave the first lecture for the year when he spoke of his recent journey across the Nullabor Plains to Western Australia. Dr. Graham Brown of Colac described his three month trip to the Gulf of Carpentaria west to the Ord River scheme then south to the Nullabor Plains. This route took the party over much uninhabited and desolate country which was nevertheless amassed with Natural History interest.

"Around Europe" was the title of the address given by the Headmaster of the Geelong Grammar School, Mr. T. R. Garnett, who showed many slides to illustrate the trip.

Club member, Mr. Laurie Braybrook, who is attached to the Department of Agriculture, gave a detailed account of the life and care of bees for commercial use.

Again, Mr. Ernest Ranks, of Melbourne, delighted members with an account of his journey following the path taken by the Burke and Wills expedition.

Mr. Jack Wheeler and Miss Voi Boardman gave illustrated descriptions of their respective trips to Central and Northern Australia.

Another Club Member, Mr. Eric Bound, entitled his lecture "Nature and the Camera" and pointed out various aspects of photographing Natural History subjects.

The second annual Symposium was held at the December meeting, this time studying Mud Island from various aspects.

Mr. Bob Burn interested members with his lecture on the little known subject of Nudibranch, a subject to which he has contributed much original investigation.

Messrs. Trevor Pescott and Duncan MacKenzie presented the last lecture when they described a recent excursion to Lady Julia Percy Island with special reference to Terns and Fur Seals.

Well attended excursions have been undertaken to various areas in the Geelong district under the leadership of members familiar with the respective locations. Areas visited have included the Werribee Gorge, the Otway Ranges, Durdidwarrah, Anakie Gorge, You Yangs, Gum Flat, Brisbane Ranges, Bannockburn, Point Addid, Ballarat and Lal Lal. Literature has been prepared before several of these excursions and has proved a valuable guide to members attending.

During the year, the Club purchased a slide projector and material for a screen. The Club badge has reached the final stages of preparation and should be available to members early in the year.

The library is open at each General Meeting and journals and periodicals may be borrowed. Gifts of journals and books have been gratefully received during the year.

Keen interest has been shown in the Misses Cuthbertson's property at Ocean Grove and under the guidance of Mr. Wheeler members have supported the appeal for money to purchase the land. The outcome of negotiations has not as yet been finalised. Members have assisted the Bird Observers' Club planting trees at the You Yangs.

Another essay competition was held during the year and was won by Mr. Geoff. Carr.

In conclusion, we wish to extend thanks to all those members and friends who have so willingly given of their time and knowledge for the benefit of the Club. As we embark on the Fourth Year of the Club's existence, we hope for increased interest and participation by all members.

Voi Boardman, Hon. Secretary.
11/3/64.

*****

THREE TAILS

By Duncan MacKenzie

A friend recently commented on the fact that he had seen a three tailed lizard and asked if these "freaks" were common. Two tailed lizards are seen fairly frequently, those with three or four tails not so often. But the explanation is the same in every case. The lizards are not born as freaks; I have not yet heard of a lizard with a natural double tail; the freak is always the result of an accident.

Many lizards have the faculty of casting their tails off under the influence of a sudden fright, or when hotly pursued, or grasped roughly by the tail. This is a provision for their protection. The tail is most convenient "handle" for an enemy to grasp; when it comes adrift the enemy stops to eat it, giving the owner a chance to escape. In due course a new tail grows from the stump.

Occasionally, a lizard's tail is damaged about the region where it would normally "break" off. In such a case, the original tail may be retained, but a new tail may begin to grow from the seat of the injury; in other cases, the original tail may be dropped, but damage to the regenerating surface may cause it to sprout not one tail, but several separate ones.

*****

SHARK ATTACKS

By Duncan MacKenzie

Details of shark attacks in Australia have been compiled at the Australian Museum for a world-wide survey being made by the Smithsonian Institution, Washington, U.S.A. The survey will facilitate research into the reasons for shark attacks.

*****

STATEMENTS OF RECEIPTS AND PAYMENTS FOR YEAR ENDING MARCH 14, 1964.

RECEIPTS:

TO	Brought Forward from 1962/63	72. 6. 5
	Subscriptions	94. 2. 0
	Interest	2. 1.11
	Subscriptions to Native Plants	5. 0. 0
		£173.10. 4

Total Financial Members as at March 14, 1964. (112)
Total Financial Members as at March 14, 1963. (131)
Total Financial Members as at March 14, 1962. (134)

PAYMENTS:

BY	B.O.C. Christmas Cards	18. 9
	Petty Cash (Secretary)	10. 0. 0
	Allens Typing and Duplicating	1.15. 0
	G. Mercer	20. 2. 3
	W.J. Griffiths	4. 1. 9
	Geelong Advertiser	18. 9
	Vic. Field Nats. Club	2. 0. 0
	Petty Cash (Treasurer)	5. 0. 0
	Society for Growing Native Plants.	7. 0. 0
	Sears Moreton	2.11. 0
	Littlejohn Memorial Donation	2. 2. 0
	Elva Collins	13. 7.10
		69.17. 4
Cash in Bank as at March 14, 1964.		103.13. 0
		£173.10. 4

D. MacKenzie
Treasurer.

DEVOTION TO AN INJURED SWIFT

By Jack Wheeler

Each summer, two species of Swifts visit Eastern and Southern Australia, migrating from South-east Asia. Swifts arrive in the Geelong district in December and depart during late March or early April. Occasionally Swifts, which feed on the wing, are found injured, usually from some misjudgment in flight by having crashed into overhead wires.

On February 12th last, a Spine-tailed Swift was found on a roadway in Newtown and on examination was found to have an injured lower mandible and right wing. For four days it was very listless and showed little interest in life and little hope was held for its recovery. On February 16th, one of this Club's younger members, Graeme Dumbrell, of Bell Park, offered to care for the bird.

Graeme immediately started experimenting by feeding the bird with a number of insects and found that the abdomens of common black crickets were readily taken.

It must be realised that for feeding on the wing these birds are equipped with a very wide mouth or gape so that insects can be taken readily whilst flying and that they do not alight, as most other birds do, in their search for food. This means that the bird will not peck at things for self feeding, so Graeme's task was one of hand feeding.

Graeme has now been feeding this bird for fortysix days and the bird takes on average between fifty and sixty cricket abdomens per day, being fed each morning, midday and evening.

The bird has made a remarkable recovery and each evening is given flying exercise with a hope that the bird would take off. A Vet. Surgeon who examined the bird found that the wing is not broken but has torn muscles.

Graeme's devotion in providing something like 2,000 crickets, which are not always easy to come by, was brought under the notice of the Bird Observers' Club at their Easter Camp at Edenhope, and members subscribed sufficient money to make Graeme a member, paying two years' subscription and also providing him with a Club badge and will arrange a presentation of the Club's new publication "Honeyeaters of Australia", which is to be released shortly.

***

THE WANDERER BUTTERFLY

By Trevor Pescott

Although the migration of birds is well known, accepted as one of the mysteries which naturalists throughout the world study from both theoretical and practical viewpoints, the migratory wanderings of other creatures are less known than the ornithological problem. Insects, in particular, present a most interesting case, for their lives are so short that instinct must be considered as a much stronger influence in migrating than it is in birds and mammals. The latter creatures are influenced far more strongly by physical features, such as climate and food; one could imagine that a bird, faced with desolate weather, food or water scarcity, would wander in search of relief. But could we equally imagine a butterfly, for example, following a migration course for any other cause than a primitive instinctive urge?

And yet this seems to have happened - for a butterfly, the Wanderer, Danaida plexippus, has migrated across the world as its food plants have been introduced into other countries. Originally, the butterfly was found only in South America, and even then it had an annual north-south migration of some 1000 to 2000 miles.

Then in 1862, the beautiful insect was found in Tonga; five years later it appeared in Samoa, and it was first recorded in Australia (Queensland) in 1870. Two years later it was recorded in Victoria. In each case, the butterfly arrived only a decade or two after its food plants - "milk weeds" of the Asclepiadae family which includes the familiar swan plant - had been introduced accidentally or as garden plants.

Perhaps the Wanderers were carried by winds to these distant places- in which case, these insects would have arrived as visitors only in remote places where the absence of food plants prevented breeding. This is a fact in England - the butterfly has been recorded there on several hundreds of occasions but it does not breed there because its food plants are absent.

With regard to Geelong, R.E. Trebilcock writing in an early *publication records the butterfly as follows - "Danaus petilia, the Lesser Wanderer. It is only an occasional visitor to the Geelong District. I took numbers of them in 1906 at Queenscliff and in the West Geelong Cemetery." *(See "The Geelong Naturalist" Second Series Vol.3 P71 June 1913 "Butterflies of the Geelong District"). Now, it is a very common species around Geelong, and breeds freely in many city and suburban gardens.

LIFE HISTORY

The Butterfly itself is a magnificent insect and probably the largest butterfly in Southern Victoria; it belongs to the family Danaidae, which includes, besides the Wanderers, the "Tigers" and the "Crows". All feed on plants which exude milky sap, and the caterpillars are banded in various shades of white, yellow and black.

In the case of D. plexippus, the caterpillars emerge from a pale yellow egg as a creamy-yellow creature ringed with black bands; at both the head and the tail are two fleshy black "tentacles". They are voracious feeders, and when they are ready for pupation, their bodies are thick and sleek; they leave their food plant, and restlessly search for a suitable place to pupate. When this is found, the caterpillar attaches itself by a small pad of silk by the tail-end of the abdomen; there it hangs, with head curled up, rather like the letter J. Two days may elapse with little outward change; but the skin has become a mere shell, for the creature inside has changed to its chrysalis form. Suddenly the skin splits around the top and is shed - and the wonderful pale green chrysalis takes its place.

The next stage in this metamorphosis may take place within three weeks - or not for six months, depending on the time of year; a late autumn chrysalis may not change until the following spring. This is the butterflies' "safety valve", for each winter there are both eggs and chrysalis waiting to emerge as their respective forms with the appearance of warm weather.

The chrysalis remains green until within two days of emergence of the butterfly, when the main part becomes darker; soon, it is possible to see the wing pattern of the butterfly, and within twelve hours of the butterfly's appearance, the entire chrysalis is black, showing the butterfly pattern inside. Suddenly the longer side of the chrysalis shell splits, black legs appear, then a head and abdomen - the butterfly is upside down and "back-at-the-front", for it has to grasp the chrysalis case with its legs then change position from head down to head up. Its wings - stubby and crumpled - are last to leave the shell and as these are drawn down clear, they begin to expand. This entire emergence takes perhaps five minutes, but the next process is longer and involves several hours. The wings have to be changed from stubs to the long, wide and straight appendages which are hard enough to hold the butterfly aloft, drifting in the upper winds for perhaps thousands of miles and many weeks of ceaseless action.

The wings are actually "pumped" out - they do not expand by their own springyness or weight; the butterflies' internal pressure pumps the wings out, and the web between the veins becomes drum-tight. And now we have a creature of magnificent beauty - wings of tawny brown, with veins and margins black spotted white; the body and legs are black too, and also are spotted. The male has a scent pouch at the second vein in from the edge on the hind wing.

Insects have six legs, but with a quick examination of the Wanderer there appears to be only four - the other two are kept folded on either side of the "mouth", the long curved probiscus or tongue which the butterfly uses for drinking.

The Wanderer Butterfly is one of our most attractive insects, for in all forms beauty is apparent. It is not a pest, unless its feeding on the Swan plant could be called "destructive", and it seems to be immune from birds and other creatures' attacks. Could it be that apart from all its other attributes, it could be evil-tasting rendering it unattractive to enemies?

*****

A RARE PLANT AT LAL LAL

By Jack Wheeler

Visiting Lal Lal on the March excursion, members were interested in two large shrub-like bushes, identified as Discaria australis (Austral Anchor Plant), now said to be rare in Victoria. The two bushes were situated on the north bank of the Lal Lal Creek, 500 yards upstream from the Falls. The small leaves are shed each summer, exposing sharp spines which are paired along long stems. The only other known place that this plant occurs in the Ballarat area is at Creswick where the plants are small and stunted. Once known to be in Tasmania, it is now thought to be extinct in that State.

The Anchor Plant prefers to grow in moist localities such as on the banks of streams.

Another plant of interest at Lal Lal, and also growing just above the Falls, was Marsilia drummondii (Nardoo). It was growing quite prolifically in and near the edge of the stream. Seed spores of Nardoo were once gathered by lubras sweeping them from clay pans and using them as food in the form of flour. Nardoo is very closely related to ferns but has leaves not unlike a four leaf clover.

***

KING OF BIRDS

THE STORY OF THE WEDGE TAILED EAGLE

By Duncan MacKenzie

The eagle came in from the east, moving very steadily. It swept grandly round the far face of the valley, then moved its wings tremblingly, a delicate, un-eagle like motion that was almost hovering. It then dropped like a stone, landing with its great talons outstretched on the limb of a dead tree, the huge bulk silhouetted against the clear sky.

I lowered my binoculars and thought how I had often hoped someday to photograph these majestic birds. Looking up at the huge stick nest towering 40 ft. above me, I knew my chance had come. There is a time for reflection and a time for action and I knew if I was to do any good then there would have to be a great deal of action before my camera lens would be pointing in the direction of the nest.

The nest itself was not really large as Eagles' nests go, but the situation it was placed in made up for that minor formality.

The tree was high up on the steep ridge of a heavily timbered valley and the position of the nest commanded a view on all sides, as is the usual practice with eagles. We had decided to use tele-photo lenses and this would necessitate a hide 40 feet away from the nest. Our first effort at building a hide in an existing tree ended in failure as we could not get enough height. We would have to do better than that.

During the following weeks we man-hauled enough steel scaffolding up the steep slippery slope to build a hide 40 ft. high. On two occasions during construction, rain started to fall and we had to leave the area immediately. The nest now had two downy young, and the safety of these young came before anything else. Left alone for any lengthy period in cold wet weather, the young would surely die.

The following weeks, however, were warm and sunny, and the hide soon reached completion. The final stage was the actual "hide" itself. This consisted of timber flooring and a double thickness of heavy hessian enclosed on four sides and top. The prime objective of the hessian covering was to make sure that no slits or openings were showing that would allow the eagle to see in. If this happened while one of us was in the hide, then the adult eagle would never return. It was at this completion stage that we now noticed that there was only one young in the nest. With eaglets it is usually the survival of the fittest and a weak bird does not stand much chance of reaching adulthood.

The next week I climbed up to the hide with all my camera gear and food. We cut two holes in the hessian. One for the camera lens and the other, much smaller, was for the exposure meter. I set the equipment up and closed the back flap of the hide securely. The boys who had come with me walked off down the slope making a terrible noise. Birds can't count, and it was hoped that the adult eagles would think that all who had come to the area, had left.

The weather was hot and clear. The mists dried out the valley and the air was sweet and warm. The sun shone between the branches on to the nest and I could see the young stretching its neck and walking shakily around the nest. Occasionally he would tilt his head to watch a high-flying mob of parrots which came slanting across the valley. The wind was driving the parrots, but as soon as they reached their home valley they all heeled over and poured down out of the upper air, slicing and skidding to check their speed. Some of the last ones took the run straight and had to weave frantically at the bottom to pull up at the dead gum tree which blossomed like a cherry tree. They had been grey against the sky, but now they were a colored mass, and the eaglets eyes were drawn to them again and again.

The minutes became hours and I had not sighted or heard the adults. On several occasions the eaglet had stood up and started to chirp and I thought the adults were coming in with food. I had been in the hide over six hours and it was now time to leave.

The following week I again resumed my vigil in the hide. The weather outlook didn't appear to favour me. After two hours the sky closed over and the valley became a wind-tunnel. The bushes and trees on its sides were blown back over themselves and the eagle's nest rolled in the wind. Rain squalls came running before the wind and the far side of the valley dissolved into greyness with here and there a dead gum tree poking up out of the long, curved sweeps of rain. Mist rose from the ground and was blown away through the valley. The dead trees were uglier than before, because their outlines were thrown clear against the grey swirling mist.

Water started to drip through the hessian and I decided to start packing up. Just then there was a loud thump from the direction of the nest and I quickly looked through the camera lens. The female was standing on the edge of the nest, her great wings hunched for an umbrella over the young, the black flight feathers dulled with the rain and the fawn shawl of shoulder feathers looped. The white young nestled in against her breast feathers safe from the rain.

After five minutes the rain cleared and the female bounded off the nest sweeping down into the valley. I had taken five photographs and was feeling a little happier.

Over the ten-week period the eaglets are in the nest, the parents bring more than 200 rabbits for the young to feed on. Sometimes the menu is varied and on two occasions I noted that they carried in possums. They usually come in the morning and the evening with a rabbit swinging from one sharp talon, sweeping up to the nest with majestic ease.

Their long legs are feathered to the ankles, and as they land they drive them out to absorb the impact of the landing, the rabbit carried as effortlessly as a tennis ball.

For the first month the young are weak and shuffle about the nest on their elbows. The old birds come to the nest then and feed the young themselves. They nip little pieces from the thighs of the rabbits and tenderly pass them to the eager young. When the leg is laid nearly bare, the old bird seizes the bone with its beak, tears the leg out by the roots and swallows it whole, choking over it, its throat distended, the great talons clamped across the limp paunch.

When the young are replete and lying stretched out asleep like slaughtered fowls, the female brings fresh green gum tips to the nest. She stands there like a grotesque peace dove with her war-like beak gripping a green twig as thick as a finger, holding her head high and arching her neck to turn the spray around and work it into place in the nest already matted with green leaves. Gum leaves are cool and clean and perhaps antiseptic.

The old birds, their fear of the hide eased a little, were easier to photograph. They returned more often and much of my time was spent just watching. I had run out of film and must wait for the boys to return before descending from the scaffolding.

From a small hole in the hessian I watched the adults come from behind the far ridge of the valley and float up like swallows until the up-blast caught their wings and swept them up and up into the scudding mists. There they hung still in the air torrents with their wings crooked back and their long, feathered legs extended as brakes, hanging fixed in the sky one above the other, like black barbed anchor leads.

Then one would retract its legs and slip forward in a great U swoop" and when it had hit the bottom it would be thrown high again, its wings still arrow-headed, shooting straight up and up until it stalled and then over-balanced forward again into another great dive. Sometimes they were shut off from view in the mist, but as a fresh rush of air swirled away the mist for a minute, there was the crest of the ridge again, clear and sharp, with two black shapes hanging high overhead, poised like arrow-heads.

The young eagle watched these flights when it could and each time its parents fell, rushing down past the ridge-head into the valley below, it cried out excitedly, but as the old birds were lifted high out of the valley back into the mists again, its cries subsided, and it fell to flapping its own wings and to lifting and settling in the wind, against the time when it too would fly high in the wind and mists.

As a packed my gear I thought that at last I had beaten the eagles - they had finally submitted, but, on second thoughts, maybe it had only been a compromise, a King's concession, for no matter what our actions may have stirred in these majestic birds, they still remained King of Birds.

*****

HISTORICAL IRON MINE AT LAL LAL

On March 15th the President of the Ballarat Field Naturalists Club, Mr. P. Day, conducted Ballarat and Geelong naturalists to the old Iron Mine situated on a high ridge overlooking the Moorabool River, three miles east of Lal Lal Falls.

It was here, in the early days, that deposits of iron stone were crushed and cooked in a large furnace, fired with coke and limestone, to produce raw iron. The product which was of very high quality was then transported to a foundry for manufacture into a variety of items. Today in Ballarat, iron railings around St. Patricks Cathedral still remain and were a product from this source.

The large retort furnace at the mine is still in an excellent state of preservation in spite of its idleness of over seventy years. All who inspected the area agreed that something should be done to conserve the furnace as a national monument.

By Jack Wheeler.

PROPOSED BELLARINE NATIONAL PARK (CUTHBERTSONS)

By Jack Wheeler

The first public meeting to discuss the preservation of one square mile (640 acres) of virgin scrub land, known as Cuthbertsons, and situated on Grubb Road, Ocean Grove, was presided over by Cr. A. R. McAllister, Mayor of Geelong, at the Geelong City Hall, on 22.11.62.

Twentyfour interested people were present, and the following spoke in support of the proposal - Mr. Hayden Birrell, M.L.A., Cr.J. Henderson President of the Shire of Bellarine; Cr. R. Guyett; Mr. J. Wheeler, for Geelong Field Naturalists Club; Mr. E.M. Boddy; Mr.F. Grimwade; Cr. C. Urquhart; and Mrs. J.P. Wallace.

A Committee was then formed. Executive as follows:- Chairman the Mayor of Geelong; Vice Presidents the President of the Bellarine Shire, and the Mayor of Queenscliff; Secretary Mr. H.A. Williams; Treasurer Mr. H. Birrell, M.L.A. (also to act as Liaison between the Committee and the State Government); Committee members Cr. R. Guyett; Cr. C. Urquhart; Mr. J.R. Wheeler; Mrs. J.P. Wallace; Mrs. D Wood; Mr. E.M. Boddy; Mr. F. Grimwade.

The duties of the Committee were outlined as follows:-

1. To give the proposal ample publicity.
2. To make a State-wide appeal for finance.
3. To make the necessary proposals to acquire the land.

The Committee, since its formation, has met on the following occasions 16.11.62, 28.2.63, 30.4.63, 21.8.63, 11.11.63, also a Sunday afternoon rally was arranged at the home of Mr. and Mrs. J.P. Wallace, Ocean Grove, at which our Club President, Mr. T. Pescott, and Secretary of the National Parks Association, Mr. Ross Garnett, spoke on the project.

The Committee has posted hundreds of letters to businessmen in Geelong and District, whilst the Geelong Field Naturalists Club forwarded details to all Natural History Societies throughout Victoria. Members of the Committee made many personal contacts with business heads.

Many naturalists have given financial support, but the response from Geelong business people has been disappointing.

Donations of £100 and more came from the following - Shire of Bellarine

£2,500; Mr. F. Grimwade £500; Mr. and Mrs. J.P. Wallace £250; Cheetham Salt Co. £100; H. Thornton Grimwade £100; Ford Motor Co., Aust. £100; Mr. G. Clarke, Linton Park £100. Our own Club supported with £25.

At the time of this report going to press, the Fund stands at £4,329, plus £3,750 promised from the State Government, making a total of £8,079.

The Committee at a meeting held on 11th November, 1963, formed a Sub-Committee of three members, for the purpose of negotiating with the Solicitors of the Misses Cuthbertson, to a maximum figure of £35 per acre for that north-west portion of the property, approx. 250-300 acres with a chain wide access road to Grubb Road.

Solicitors for the Misses Cuthbertson have recently advised that this offer cannot be accepted. However, subject to certain conditions 300 acres of the north west portion of the property has since been offered to the Committee at a price which I feel may now allow the negotiations to come to a satisfactory conclusion.

This would then make it unnecessary to apply for acquisition under the Town and Country Planning Act.

The Committee is not closing the appeal for public aid as the property when purchased will require such improvements as fencing and catchment water. Donations may still be lodged with myself, or posted direct to Mr. H. Birrell, M.L.A., Box 11, Ocean Grove.

Conclusion: It has been predicted, on the basis of statistical analysis of populations, habits of people, and other relevant data, that by the year 2000 A.D. the areas required for recreational purposes will need to have been increased forty-fold. Let us then, not relax in our efforts to preserve areas, which in the heart of every good thinking naturalist, are refuges for so many of our unique native things. My friend, the late P. Crosbie-Morrison, once said, "Every State in Australia has its National Parks, but in my opinion no State has enough of them".

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GREENHOODS

By Voi Boardman

The most widely represented genus of orchids in the Geelong District is undoubtedly Pterostylus or the "Greenhood" orchid. Probably most people are familiar with at least one species which grow abundantly in the bushland near Anglesea, in the Maude-Steiglitz area, the Brisbane Ranges, the You Yangs, and the Bellarine Peninsular. Although most seek the shelter of trees and gullies, some can be found in the open grassy country.

The column of the Greenhood consists of the upright sepal closely in contact with two curved petals. Projecting from either side of the column (which is usually hidden in a hood) are small wing-like projections. The name Pterostylus, is derived from these projections. The two lower sepals are joined at the base and sweep upwards dividing to pass either side of the hood. In some cases, when the sepals are extended upwards, the gap between the lower sepals and the hood is very small. In most species the tongue is insignificant and hidden by the sepals. However, in a few, the tongue is prominent and an identifying feature.

Greenhoods flower during most of the year. In this district most species appear during the winter and spring but several members can be found in the summer and autumn,

First to appear in the early autumn is P. parviflora or the Tiny Greenhood, which is widely distributed over this district. Each stem of this plant carries several insignificant pale green, erect flowers.

P revoluta has been found in the Brisbane Ranges but is uncommon. Known as the Autumn Greenhood, its large flower is striped with green and brown and the hood is curved in a long tip.

The Brittle Greenhood (P. truncata) may be found in large numbers in the open grassland of the You Yangs. Its large, irridescent flower nestles close to the ground on a tiny (one to three inch) stem, making it most easily recognisable.

During the winter months three strikingly different greenhoods appear. P alata is erect and striped and brown - hence the common name of Striated Greenhood. The trim Greenhood (P. concinna) is a neat, compact little flower with the distinguishing feature of a V-shaped tongue. P. Toveyana or the Mentone Greenhood is a hybrid form with the characteristics of both these last two. It has been found in several areas at Steiglitz.

The banded Greenhood (P. vittata) is conspicuous during the winter months. Each stalk bears from one to eight Brown-purple flowers with large rounded lower sepals.

The commonest and most widely distributed of the Greenhoods is P. nutans or the Nodding Greenhood. The flower, large and pale, almost irridescent green, droops forward over its six - eight inch long stem. These are found abundantly in damp sheltered areas but less spectacular flowers can be found almost anywhere in the bush land.

A pale, erect flower on a short stem, the Dwarf Greenhood (P nana) is found all over the State. The lower sepals of the tiny flower are comparatively long and adhere closely to the hood.

The most splendid of these orchids is P. longifolia or the Tall Greenhood. It may have up to fifteen green, rounded flowers and long narrow dark green leaves on each stem.

The Blunt Greenhood (P. curta) has large basal leaves and a large erect flower, the lower sepals of which are shorter and not as prominent as in other species. Another small flowered Greenhood is the Maroonhood or P. pedunculata. Found in sheltered timbered areas, it has a long, thin stem and a small erect flower with long lower sepals and ranging in colour from green to a deep maroon or purple.

P. barbata is an elegant, easily identified greenhood. The distinguishing feature is a pendulous tongue covered in brilliant yellow hairs. It is aptly known as the Bearded Greenhood.

P. alpina has been reported from remote areas in the Brisbane Ranges but is very localised. The Mountain Greenhood is similar to P. curta in shape, size and colouring but the tips of the lower sepals arch back to an almost horizontal position.

Another uncommon species is the Ruddyhood, P. pusilla. Three or four of these superb little flowers are found on each stem and are brilliantly coloured rust brown. The tongue is sensitive to touch.

Except for the few species already indicated, these greenhoods can be located over most of the Geelong area.

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This section should be regarded by members as being their own, for nature notes, observations and queries. All correspondence should be addressed to The Editor, "Geelong Naturalist", 16 Lascelles Ave, Manifold Heights, Geelong.

EXACT GEOLOGY

By Trevor Pescott

During the V.F.N.C. trip to Tower Hill at Easter, a quaint story of local interest was related. A farmer in the district, a man of not extensive education, told a friend that the volcano that created the major crater became extinct 2008 years ago. When asked how he knew the exact age of the crater, he answered, "Well, one of them geologist blokes came down and said that it was two thousand years old - and that was eight years ago!"

*****

HORSESHOE SHRIMPS OR "TOE BITERS"

By Duncan MacKenzie

Present in some numbers in dams and water holes, these crustaceans always arouse interest and some speculation, because of their remarkably sudden appearance in non-permanent water. Where do they live when the pools dry up? These are primitive crustaceans, rather humble relatives of the shrimps and prawns, which are specially adapted to drought conditions.

Two types are common in Australia - Lepidurus and Apus, which is very similar to Lepidurus but lacks the little central leaf-like appendage between the two long tail-whips; both types vary from an inch to about three inches in length. The back is an olive-green carapace shaped rather like a horse's hoof, and the numerous leaf-like appendages below, deep red, are legs which perform the functions of gills. The eggs are laid in the mud and remain dormant when the pool dries up, but a week after the pools have been filled by rains again, they hatch and, feeding on almost any organic matter present in the pool, they grow very rapidly to maturity, the whole life span being completed in less than a month, leaving another crop of dormant eggs for next year's hatching.

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FISHING EAGLES

By Trevor Pescott

From the north side of the Tower Hill reserve, a splendid view of the area is obtained. As we watched, we were impressed by the number of Whistling Eagles we could see at the one time - at first there were ten circling above us, and as we went closer to the lake, we were surprised to find that the actual number above us and over the water was well over fifty birds.

Many of the eagles were flying low over the water, often dragging their claws in the water; apparently they were catching fish, for after each sortee, they would repair to the water's edge and feed. We were not able to get near enough to find the species of fish caught, but they were apparently quite large, and a surface dwelling type.

Incidentally, although they are usually called Eagles, more correctly they are Kites, similar in many habits to the Northern species which gather in large numbers arouns the slaughter yards - the Fork-tailed and the Square-tailed Kites. The Whistlers feed far more extensively on dead matter than the Eagles which are mainly hunters.

*****

SIR CHARLES BELCHER STILL ACTIVE

By Jack Wheeler

A recent letter from Sir Charles Belcher, now living in Kokstad, South Africa, reveals that even in his 88th year, his memories of his days in Geelong are still very much to the fore.

After our excursion to Falcon's Cliff, Point Addis, on February 16th a letter was despatched to Sir Charles asking who was the man in the photograph in his book, "Birds of Geelong", being lowered to the falcons' roosting place on this cliff.

His reply was received a week later, saying that the cliff climber was Mr. Hugh Riordon and the photograph was taken in 1904. Sir Charles said that he was with Mr. W. J. Adie when the Peregrine Falcons were first discovered roosting and nesting on the cliff.

Sir Charles is at present on a trip to England.

**

THE COMMON POUCHED MOUSE or LITTLE MOUSE- SMINTHOPSIS (SMINTHOPSIS MURINA)

By Geoff Carr

I first saw this marsupial, Sminthopsis Murina, in January 1963, when I captured a specimen at the Bannockburn rubbish tip. Again on March 31st, I captured two more specimens, at the same tip.

The Common Pouched Mouse belongs to the genus Sminthopsis - the narrow footed pouched mice, as opposed to the genus Antechinus - the broad footed mice. All Sminthopsis species have a foot no more than 3 m.m. wide. The foot pads on Sminthopsis species are reduced to granulated cushion-like areas at the base of the toes, indicating the hopping, terrestrial habit of the mice.

The ears are large, and the pouch more developed than in the broad footed species. The tail, in some species, can be used as a fat storing receptacle, as in the common Fat-tailed Sminthopsis.

There are two variations of S. Murina.

Sminthopsis are almost exclusively Australian, one species occurring in Tasmania and one in the Aru Islands.

Little is known of the ecology and habits of Sminthopsis species. In the main, they are terrestrial, living beneath logs, stones and any other cover which may be available. They are insectivorous, though sometimes carnivorous, and will even practise cannibalism if need be. One such instance is where two Sminthopsis were sent some distance together in a box. On arrival at their destination, only one fat well fed individual remained, along with the remains of its unfortunate travelling companion. They have been reported feeding on the introduced field mouse when both were common in the Toowoomba district.

The common pouched mouse is a beautiful, and very engaging creature.

In general appearance it is mouse-like with a grizzled mouse grey body, and grey-white underside. The snout is pointed ending in a delicate black nose and bewhiskered with fine sensitive whiskers perhaps one-half inch long.

The eyes are large, dark and protruding. The fine, fragile looking ears are very large and when not alert the ears rest on the shoulders.

The teeth, set in the fine jaws are needle like; very efficient, I should think, in handling the food of the creature. The food will be discussed in detail later in the article.

The tail is long and slender, the complete animal measuring perhaps four inches.

The creature is found solitarily or in pairs in dry sclerophyll forest or woodland. It lives beneath bark and such material, as previously stated, though of the three specimens I have found, two were living under sheet iron, the other under linoleum.

The Common Pouched Mouse has a wide distribution being found from Cairns, in Northern Queensland, South-east Queensland through Eastern New South Wales to Victoria. Also, Adelaide, South Australia, South-west Western Australia from Northam to King George's Sound. It is comparatively common in South Queensland and New South Wales though rare elsewhere.

From the fact that I have found three specimens at Bannockburn, it does seem that they are to be found in reasonable numbers in isolated areas. Indeed, investigation into the Bannockburn area may prove very interesting.

The specimen found at Bannockburn in January 1963 was the first Sminthopsis Murina recorded from the Geelong area.

Sminthopsis Murina is a marsupial, bearing up to eight young. When the young are advanced enough to leave the pouch, they cling to the fur on the sides of their mother, and it is in this way they are carried about.

Eight young clinging to her sides would present quite a burden to a mother. The breeding season is from June to September. They are apparently devoted mothers, remaining by their young in time of danger.

The creature can move very rapidly and moves in a kind of bounding spring when frightened.

Hunting for food, he moves silently and with caution, ears erect, nose quivering and breathing rapidly. The tail is held stiff, parallel to the ground.

On detecting food he rushes to the capture and kill; jaws working very rapidly, he quickly dispatches the victim. The Common Marsupial Mouse is in some way reminiscent of the shrew.

Their natural enemies would be snakes, and being nocturnal, owls, ferrule cats and other predatory animals.

In captivity S. Murina is quiet and eats well.

The first specimen was kept for about one week, after which it died, through no readily apparent cause. It ate an astounding amount of food, including grubs, grasshoppers, beetles, crickets and moths and two species of lizard - the eastern water skink, and the red throated skink. The eastern water skink was a fully grown specimen. One three-quarter ounce S. Murina has been known to devour one ounce of food in one night.

The most recent specimen in captivity ate on the first night, three large cockchafer grubs, half a small Little Whip Snake, and seven crickets; on the second night ate fifteen crickets, and on the third night ate twenty crickets, leaving only the wing cases and back legs.

Such is there amazing appetite. They drink small quantities of water.

The specimen awakes about half an hour after dark and sleeps all day.

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AUSTRALIAN WILDLIFE CONSERVATION FUND

A meeting of well known naturalists was recently held at the Southern Cross Hotel in Melbourne, to obtain the feeling of Victorians in the setting up of a Wildlife Conservation Fund. Amongst those who attended were -

Hon. Malcolm Fraser M.H.R., Dr. Norman Wettenhall, Dr. Smith, Professor Turner, Messrs. Bailleau Myer, Roy Wheeler, Ros Garnett, Butcher, Downes, Lawrence and John Landy.

Meetings are to be held in other States before any definite move is to be made.

*****

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JOURNAL OF THE GEELONG FIELD NATURALISTS CLUB

LONG EARED BAT

Registered at G.P.O., Melbourne, for transmission by post as a periodical HON. EDITOR: DUNCAN MACKENZIE

CONTENTS

	Page
Editorial	1
Lonely Koala - By Jack Wheeler	2
Spiders - By Duncan MacKenzie	5
Lesser Long-Eared Bat - By T. Fletcher	11
Cuckoos Dilemma - By Jack Wheeler	12
Our Wildlife - 100 Years Ago - By L. Banfield	13
Native Plants for Our Garden - By E.G. Errey	16
Some Orchids of the Bellarine Peninsula - By Eric Bound	20
The Caspian Tern - By C. Tingate	22
The Fairyland of Fungi - By G. McCarthy	25
Banding Muttonbirds - By Trevor Pescott	26
At Random	30
Junior Section	33

The Statements and the opinions contained in the papers published in this Journal are the responsibility of the respective authors.

MEMBERSHIP

Membership of the G.F.N.C. is open to any person interested in Natural History. The "Geelong Naturalist" is distributed free to all members, and the Club's reference and lending library is available.

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COVER PHOTOGRAPH

Lesser Long-Eared Bat (Note Nose Leaf)

Photo by D. MacKenzie.

NATIONAL MUSEUM OF VICTORIA

GEELONG NATURALIST

Vol.1 No.2 July 1964

EDITORIAL

One of the meanings of the word "surprised" is "to turn out contrary to expectations". Without searching through the Dictionary, I think this is the best word to describe the Club's feelings on the acceptance of Naturalists throughout the State, of our first issue of Geelong Naturalist. At present the number of this issue printed is 600. With a Club membership of 200, this leaves 400 copies sold to naturalists and interested people outside our membership. I would personally like to thank all concerned for this wonderful response, and hope that it continues with this and future issues.

With this support, we can afford to expand in size, and include photographs, as has been done with this our second issue.

If you would like to include photographs with your articles (and we certainly urge you to), the sizes preferred are :-

(1) Half Page Photographs: Image area should be $3\frac{1}{4}$ x $5\frac{3}{4}$

(2) Full Page Photographs: Image area should be $5\frac{3}{4}$ x 7

August is the start of the period when our wild-life (especially birds) begins renewed activities. With the start of this vitally active season many naturalists emerge from their winter hibernation to study and photograph the vibrant worlds of nature. I would urge naturalists to keep half their minds on these studies and the other half on the Magazine, with a view to articles. The Editor can do so much, but without articles to work with, the task is impossible.

I would also urge Junior Members to take a more active part in presenting articles and notes for publication. We have a particularly bright and active group in our juniors, and most are capable of organizing their thoughts and ideas in the form of articles.

An added feature of the Magazine is the "Junior Page" intended for our younger juniors, and in fact any who may be interested in nature.

Mr. Woodland will be responsible for this page (for which we thank him) and all correspondence should be addressed to him, direct.

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LONELY KOALA
By Jack Wheeler

The May Excursion to the You Yangs by the Bird Observers' Club revealed an interesting bird list, which, when read before the bus left for Melbourne, was 69 bird species and one Koala.

The Koala has been at the You Yangs for over twelve months now, and since its appearance, naturalists have argued about its presence there.

Was it the sole survivor of a dying colony, had it made its way there from the Brisbane Ranges, or had it been dumped or released there after being captured illegally?

In the first case Koalas have not been known to occur at the You Yangs in recent times. They could have existed there in the early days, as there are eucalpyts species in the You Yangs on which koalas feed.

Being near habitation and with the You Yangs habitat so restricted it is logical to accept that they would never have survived the slaughter which went on in those times.

Secondly, it would hardly be feasible for a koala to make its way from the Brisbane Ranges, where they still exist, with such a break of open country between.

So this leaves the third theory of dumping after illegal capture, and one which appears to be the only answer to this lone stranger at the You Yangs.

Approach has been made by the You Yangs Scenic Reserve Committee to have Koalas released in the Scenic Reserve, but an investigation revealed insufficient food trees for a colony to survive. Since then, it has been the policy of tree planting at the Reserve to include species of eucalypts suitable for Koala diet. During 1964 500 such species are to be planted, and include the following:- Southern Blue Gum, Yellow Box, Manna Gums, and River Red Gum. So until sufficient food trees are established in the Reserve, our

Koala will have to survive a lonely existence.

Probably the best colony of Koalas nearest to Geelong, and where they can easily be observed, is at the Koala Motel in the Stoney Rises, a few miles west of Colac.

Many were released there during the overstocking scare at Phillip Island, a few years ago.

Here are a few facts about Koalas:-

First Record.
Discovered by John Price, 1798, in mountains west of Sydney. (Not recorded by Capt. Cook's party Botany Bay, 1770).

Name Origin.
Koala, aboriginal name, meaning "No Drink".

Scientific Name
Because of unusual features it was not named scientifically until 1817. Phascolarctos cinereus (Greek - a leather bag - bear).

Distribution.
Found in all eastern States of Australia, including South Australia, but not found in Tasmania, Western Australia and Northern Territory.

Extinct.
Now extinct naturally in South Australia.

Dentition and Hand.
Resemblance to Ring-tailed Possum.

Short Tail.
Resembles that of Wombat.

Pouch.
Opposite to that of possum (opens backwards).

Appendix
Length of so called appendix - 6 to 8 feet.

Not Bears
Koalas are true marsupials and should not be called bears.

Breeding

Female breeds every two years.

Young

Born naturally. Hairless and under one inch in length. On being born, finds its way into the pouch and becomes attached to the mother's teat. Time in pouch - 6 to 8 months.

Twins

Very Rare.

Maturity.

Reaches maturity at about four years.

Foliage Consumption

An adult can consume 2½ lbs. of foliage daily.

Drinking

Rarely known to drink.

Use in Therapy

In 1908 Sir Colin MacKenzie particularly studied the use of the Koalas forearms. This resulted in the making of an adduction arm splint and revolutionised treatment in upper arm victims of paralysis.

Slaughter

In early days thousands of Koalas were slaughtered for their pelts.

1908 - 58,000 pelts sold in Sydney.
1927 - Half a million skins exported from Queensland.

Conservation

Today full protection in all States.

*****

BROADCASTS

At 6.15 p.m. every Sunday Night on Station 3GL, Duncan MacKenzie and Trevor Pescott present "Worlds of Nature". These two Naturalists present informative discussions on all phases and spheres of Nature, interview eminent Naturalists and take listeners on expeditions into the field in the form of tape recordings.

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SPIDERS

By Duncan MacKenzie

When spiders were created there came into this world a creature so fantastic and unreal in habits as to tax the imaginative minds of any human. Their behaviour, remote even to their close relatives the insects, is irrational and distorted; and yet these creatures have an aura of beauty and wonderment surrounding them.

This then will be the first of a series of articles on spiders and will deal primarily with the life and habits of spiders in general, future articles telling the stories of particular species.

Why we should think of spiders in terms of ingenious, frightening, fantastic and weird is better understood if we have a look at the body mechanisms and structure, and see just what it is that makes him so different.

Firstly let us find out his relationship to the other creatures near to him in the scale of nature. He belongs in the family of Anthropods, and this family in turn is divided into classes, the spiders being called the Arachnida. The other branches, or classes, are slaters, millipedes, centipedes and insects. We now have the spiders in a class of their own, but further problems occur. The class of Arachnida is divided into orders, these being, scorpions, false scorpions, harvestmen (or Daddy-Long-Legs), Spiders, and Mites-Ticks.

At last we have succeeded in isolating our elusive subject, and now let us proceed to analyse him.

The spiders can easily be distinguished from the other Anthropods by external features alone; the two most distinguishing features being the eight jointed legs, which usually have one or more claws, and the body, which is divided into two sections; the abdomen, and the cephalothorax, which is the head and thorax. The palps are sensory and in the male play their part as part of the reproductive act, being located in front of the spider they appear as an extra paid of legs.

Care must be taken in distinguishing between sexes in the Arachnida. Size can be taken as a useful guide, as the male is usually much smaller than the female, with legs longer in relation to the body, than those of the female. A much safer method of sex determination is the palps. In the male these are much larger and in some species are so swollen that they provide a relatively safe identification. The abdomen of the female, enlarged for reproduction, can be taken as

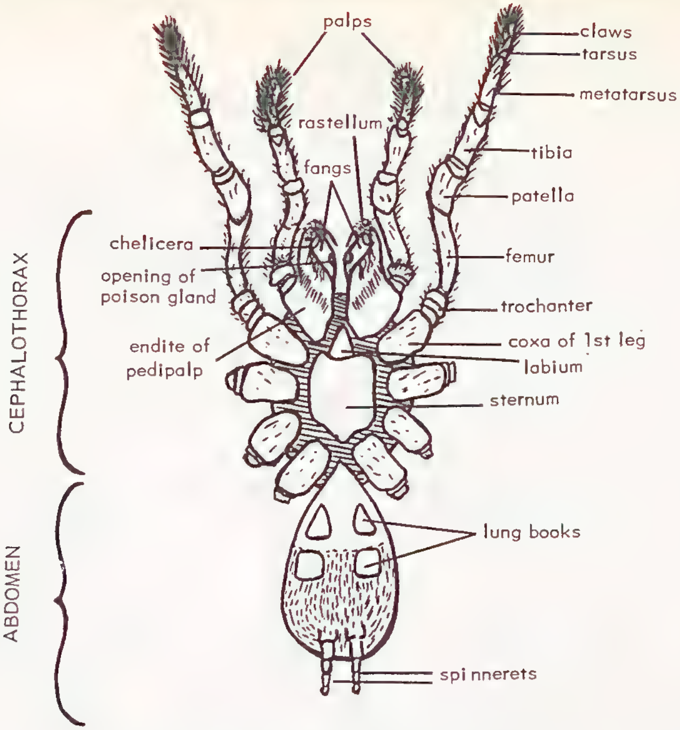
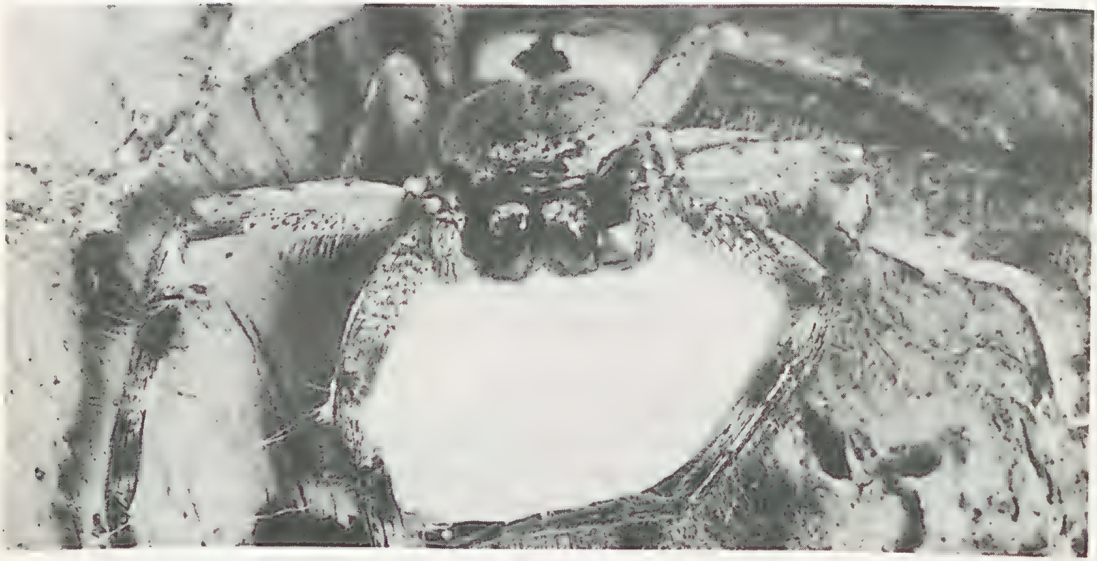


Diagram showing structural details of a spider.

Duncan MacKenzie.



FEMALE HUNTSMAN SPIDER WITH EGG-SAC

Photo by T. PESCOTT

an indication of female sex.

Most spiders have three or four pairs of eyes situated on the sides and top of the cephalothorax, although some have only one or two pairs. The eye formula (the eye arrangement) is a useful guide in separating some of the more closely related species. This formula appears to remain constant for each species.

The legs and body of spiders are covered with bristles or hairs, the degree or density varying with individuals. These bristles appear to be the spiders sense of touch and in the legs certain of these hairs probably give aid in hearing, being of an acoustic type.

All spiders are equipped with poison fangs, but except for a few "outcasts" the majority are harmless, the fangs being unable to pierce the human skin; and in the cases where they could, the amount and potency injected would be too small to produce any ill effects. These fangs are used to kill their prey with, and the method by which the prey is caught introduces us to one of the most amazing and ingenious pieces of "equipment" nature has ever provided for one of her creatures.

Nearly all spiders use web as a means of capturing and holding their prey, and this silken strand is extruded by the organs known as spinnerets, these being located at the end of the abdomen. To live, the Arachnida depend almost entirely upon the silk secreted from the spinnerets. This silk is formed in the abdomen, and is made from a protein compound of variable chemical composition. From the silk glands it passes through the spinnerets which are connected to these glands. The spinnerets are in themselves elaborate and complicated, a true masterpiece of nature. These organs which usually number from 4 to 6 are not single tubes, but in fact a system of many fine ducts, sometimes exceeding 100, each producing an extremely fine thread, these threads being drawn together to form a single thread. The silk on leaving the spinnerets is in fluid form, but as it is drawn out and comes in contact with the air, it hardens. It now possesses two qualities - great tensile strength, said to be exceeded only by fused quartz fibres, and enormous elasticity. At will the spider can produce thread that is dry and tough, or elastic and adhesive. The Orb-weaving spiders use this ability to produce different types of silk in their web making: The orb or main trap being of the sticky adhesive type, while the guy ropes or radii are made of the dry tough silk. Spiders web is so fine, that one thread of silkworm silk is equivalent in thickness to 4 or 5 spider threads.

Ingenuity, yes the spider possesses this, and displays it best in the variety of ways he uses his silk. (Perhaps I should say she as the male uses web only on certain occasions, these being explained later).

Soon after the spiderling emerges from the egg sac, he must escape to avoid the competition of his myriad brothers and sisters and his sometimes hungry mother. In times of food shortage the spiderling can be in danger from his own mother, as she won't stop short of a meal of her own offspring. So junior spins a thread of fine silk and allows the wind and air currents to waft him away from danger. By this method he may be carried many miles and on landing will frequently cover the ground and foliage with a sheet of gossamer silk.

The spiderling is now safe and he will, after a succession of moults reach the adult stage. If a limb is lost at an early age, then it is renewed at the next moult, being identical with the other of its pair. A limb lost just prior to adulthood is renewed after moult, but will not be identical with its mate.

Spiders vary considerably in the length of life span but it is usually 1-5 years. However the funnel-web spiders develop more slowly and their development period is probably 3-5 years.

Spiders are essentially nocturnal creatures, and spend the daylight hours in hiding, to escape predatory animals. Using the garden spider as an example again, let us watch and see how a night is spent.

As the sun drops behind the horizon and darkness emerges, a female orb-weaver creeps from her hideout from behind the leaves. Instinctively she knows there isn't time to waste. Into mid-air she begins to pay out a silken thread, the air currents wafting it back and forth in the breeze. Before long she feels a tug on the thread, and knows the free end has secured itself. Thus the first strand of her large web has been placed. The size of the web and the distance of obstacle free space that is spanned, depends on the length of the first guy line secreted, and the strength of wind and air currents. Rarely does she know how big her web will be and just where the free swinging line will attach itself to. A web of this spider was known to have spanned a road, the two ends of the web being secured to lamp posts on either side of the road.

There is no time to be wasted. She tests the firmness of this first and main strand, and finding it safe, proceeds to run back and forth across it, strengthening it as she goes. The line thick and taut, she now runs to the centre of the strand and drops, the silken thread paying out behind her. She then climbs up again, the thread she has just dropped being the first spoke in the wheel-like orb of the completed web. The finishing touch to the web is performed by securing a stick or small pebble to the bottom of the web to act as an anchor. This weight is then raised a couple of inches from the ground, the purpose being to keep the web extended, and to act as a stabilizer against wind."

Our huntress, her trap completed, waits quietly in the centre of the web. Small insects are looked upon with disdain, not worth the trouble for madam to even move: but should a moth or larger insect become trapped then she will immediately pounce, driving her poison fangs into her victim. One jab is enough, and in seconds the hapless victim is dead. She quickly cuts her victim out of the web, and drags it back to the centre, there she sits and feasts, sucking the body juices from her prey. If by chance the web catches and holds a creature too large for her to handle with safety, she has two outlets. She can either cut the thrashing creature out of the web (keeping her distance) and let it drop to the ground, or she can stand back and spray silk over the victim, thus entombing it in a shroud of sticky silk. When all semblance of movement ceases, she stalks in and imbeds her fangs through the cocoon into the victim. She turns and retreats back to the centre of the web, leaving the lifeless bundle swaying in the breeze.

As the first streaks of dawn jab their way above the horizon she "calls it a night" and destroys her snare. Gathering the by now tattered web into bundles, she drops them, and they float away in the breeze. Sometimes she may leave the main guy line intact, thus saving time and energy when she again starts building that night.

Many of the spiders when disposing of the web each night, follow the pattern of the orb-weavers, but some, after bundling the web up, eat it, the strong digestive juices breaking it up. Not all spiders destroy their web each night though.

The courtship and marriage of the Arachnids presents us with a picture of a weird and frightening and sometimes cannibalistic ritual. This fantastic performance makes all other strange happenings in the worlds of nature pale into insignificance.

The male, although he is much smaller than his mate, and has practically nothing to do with web making and home duties, is essential in the cycle of the propagation of the species. Driven on by a compelling urge, he seeks his mate, although he knows that it is possible, and highly likely, that for him it will be a journey of death.

As soon as our male feels the wanderlust, there is one duty he must perform before seeking out his mate in her haven of death. He spins a closely woven mat of web on the ground or on a piece of bark, and onto this web secretes his seminal fluid. He dips first one palp and then the other into the fluid. This preliminary task completed, he now goes in search of the female.

Cautiously he approaches the outlying cables of the female's home. Plucking up courage he steps onto the web. Now he begins to "strum" the web, the signals, he hopes, being conveyed to the female. Depending upon the mood she is in, she may or may not return the little male's courtship message. His desire, overcoming his sense cf safety, the male scuttles perhaps halfway across the web. The inert female moves her leg, perhaps only a fraction of an inch, and the frightened male runs for cover, his courage failing him. Minutes later, he again cautiously and slowly approaches the web. Deciding its now or never, he hurtles across the intervening space and hurls himself upon the female's back. Here he is safe, and rests to regain his breath. After a 30 seconds pause he slides round beneath her belly, and fumbles with his palps. The marriage is now consumated, but the male is still in danger. During the actual mating the female passes into a type of trance or cataleptic state. She remains perfectly motionless and seems oblivious to all happenings. But the second mating is accomplished she instantly recovers and the male must flee for his life. If he is too slow, then the female will probably catch and devour him. Cannibalism seems to be a feature if not a characteristic of many Arachnids.

The types of courtship and marriage differ with species and individuals. Some females may devour as many as six or seven suitors before they even have time to show their favours, and yet others may live in peace with their husbands for weeks.

Some males build a small courtship tent of silk, and confine their brides within until final moult is completed and she is ready for mating.

When the eggs are laid the female weaves around them a special silk sac (known as the egg sack). In this sac the spiderlings hatch and usually remain within its confines until their first moult is completed. They then emerge in their dozens and our story has turned its full cycle.

The next issue will tell the life story of the Red Backed Spider.

***

LESSER LONG-EARED BAT - NYCTOPHILUS GEOFFROYI

By T. Fletcher

This is a common species throughout the Geelong District, being readily recognised from all other members of the family by its extremely large ears and a naked nose groove which forms the letter "Y".

The taxonomy of this genus is at present indefinite but it would seem apparent that N. geoffroyi is the only one possessing this nose feature and that the Greater Long-eared Bat (N.timoriensis) has a nose ridge of little development being low, rounded and uniformly haired. It is quite possible that because of the closeness of the two species, further investigation may prove that there may be only one species involved.

The range of Nyctophilus is widespread throughout Australia and Tasmania with geographical races being represented.

The tendency of this genus during roosting would be solitary and they are to be found resting under pieces of bark in tree hollows, houses, small caves and on several occasions at the You Yangs in Fairy Martins nests.

Nyctophilus are greyish brown in coloration, small in size and depend upon flying insects for their survival.

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Mr. H. A. Boardman reported at the May Meeting that he saw three trees of the Golden Wattle (A.Pycnantha) in flower in the Steiglitz area on April 30th.

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CUCKOOS DILEMMA

By Jack Wheeler

Travelling near Drysdale recently, I was intrigued by a violent attack by a Willie Wagtail on a lone bird perched on a top fence wire.

On stopping to observe, I found the recipient of the attack to be a Pallid Cuckoo. The day was May 27th, and Pallid Cuckoos do not arrive back in Southern Victoria this early. I wondered could it be that this bird had missed out on its northern migration, which should have occurred two or three months ago.

As I watched with binoculars, the Willie Wagtail moved away to attack in turn, four other smaller birds perched on a dividing fence. This also was strange behaviour for this time of the year.

Those being attacked were also Cuckoos, but of a different breed. They were Horsefield Bronze Cuckoos, birds which are slightly larger than sparrow size, and much smaller than the Pallid Cuckoo.

Visiting the same locality a fortnight later, I was surprised to see a Pallid Cuckoo and two Horsefield-Bronze Cuckoos still there. The Pallid Cuckoo was identical to the one previously seen, having an unusual small white spot on the back of the head. During the several minutes I had the birds under observation, they all fed on long woolly caterpillars, each of which received a good deal of bashing on a fence post before being swallowed whole. Cuckoos are one of the few bird families which include hairy caterpillars in their diet.

Examining the long rye grass I found considerable numbers of caterpillars present, and specimens collected were later identified at the Melbourne National Museum as the larva of the Anthelid Moth, probably Anthela ocellata, a grass feeder.

It is quite evident from this observation that food supply strongly governs the northern migration movement of Cuckoos, and as in this case, where a good infestation of caterpillars exists, the birds will not migrate.

I might add that this autumn season in the Drysdale district has been the best for many years, with almost spring-like pasture growth.

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OUR WILDLIFE - 100 YEARS AGO

By Miss L. Banfield

If a Field Naturalist stepped on a magic carpet and whizzed back to Western Victoria 100 years ago, how he would revel in the scene!

Thousands of wildfowl frequented the lakes and swamps, bustards and brolgas roamed the plains, emu and kangaroo were everywhere.

The spring of 1864 was, too, a wonderful flowering season. "Never do we remember seeing the bush around Ararat so beautiful", wrote the "Ararat Advertiser". Heaths, many Grampians' shrubs and other native flowers flourished on the outskirts of the town. "

"Around this town, we possess every description of game - turkeys, geese, swans, duck, teal, quail and plover exist in considerable quantities", the paper said. Native companions were regarded by farmers as a first class nuisance. In flocks of 50 to 100 they hovered over a farm, dropped down on a newly cultivated field and dug up the seed with their long bills. Children were employed 'crow-tending'.

Sportsmen and professional shooters were taking a heavy toll of this prolific wild life. Dray loads of game were hawked about the town. Troy Knight seems to have had a successful plan for meshing or snaring the birds. One day in December 1864 he came into Ararat with a collection of live teal, ducks and geese "tied legwise in the most domestic fashion". One old goose waddled about a corner of the spring dray and the wyes of one teal were a beautiful clear pink color. There was a rush of Chinamen for the live game. The largest turkey yet killed in the district was in Troy Knight's cart in December 1865. It measured seven feet across the wings.

One observer said that the plains south of Ararat were overrun with wild turkeys in 1866, and another stated in the summer of 1882 that turkeys were arriving around Tatyoon and Fiery Creek in mobs of 20 to 30.

Even as late as 1884 the "Advertiser" noted in the last week of December that large numbers of turkeys were flying over each evening on their annual migration to the southern plains and the sportsmen gathered on the hill near the hospital to get within range for a shot.

A farmer wrote to the paper in April 1869 that between Dunkeld and

Lake Bolac had had seen a flight of wild duck that took five minutes to pass overhead and cast a dark shadow underneath. Another country resident sent a comment in January 1868 that a sportsman for a bet had shot the leader of a large flock of wild geese flying over the plains. The flock dropped downwards and flew around for three minutes in great disorder. Then they separated and flew in couples to the nearest lake.

Referring to the Amending Game Law the "Advertiser" in an editorial in May 1865 drew attention to the practice of netting fish in the Hopkins and added that one of the duties of a young country was the guarding of its native game.

Robbers of birds' nests, professional shooters - until their activities were curtailed by the ban on swivel guns - and the trade in skins continued to seriously reduce the wild life of the Western District.

A gentleman living near Wickliffe in 1873 saw baskets full of eggs of all kinds of wildfowl offered for sale. The penalty for the destruction of the eggs of the turkey bustard, brolga, emu, duck, bittern, wild pigeon and Mallee hen was 10/-.

Wallaby shooting on Mount Langi Ghiran was a popular sport in the 'sixties and 'seventies. Two men from Melbourne were said to have shot 50 to 60 wallabies on a trip to the mountain in May 1867.

Mount Langi Ghiran was also the haunt of thousands of parrots and was named Parrot Mountain in the Victorian Railway Guide. The birds made havoc in the orchards of Mount Cole and children and men were employed from daylight to dark scaring them off.

During this time C. Cox & Co., of Melbourne, were advertising in the Ararat paper that they bought for cash skins of opossum, platypus, emu, kangaroo and other native animals.

While indigenous wildlife was being destroyed, European birds and game were introduced to the country. Deer were released in the Wimmera, goats at Buangor and gold fish fry (through the help of the Hon. Wm. McLellan) was distributed in the dams.

"Dr. King, of Ballarat, has generously fulfilled his promise of forwarding some wild rabbits", said the "Advertiser" in September 1867. "Four fine specimens arrived by coach on Sunday addressed to James Campbell, Town Clerk. The interesting strangers were turned loose the following evening in a locality deemed best suited to their habits. Sportsmen are warned to spare them for two years".

The next month a case of English sparrows was brought to Ararat by coach and released, boys being warned of dire penalties for harming them.

In December 1867 the "Ballarat Star" was severe about the sparrow nuisance and recalled that Dr. Mueller had warned the local Acclimatisation Society against the introduction of sparrows. All the same in March 1868 the Victorian Acclimatisation Society claimed that sparrows had multiplied to such an extent that the society had been able to distribute numbers to towns from the Murray to Portland. By 1880 Ararat Borough and Shire Councils were supplying phosphorised oats for the destruction of sparrows, and a few years later the Shire was paying 5/- per 100 for sparrows heads.

In the same month that rabbits were first brought to Ararat, a Berramonga farmer, according to the "Geelong Advertiser" was bitterly complaining that he had lost 50 young fruit trees "to these pests".

Within two years of their arrival rabbits were noticeably increasing in the Ararat district and land further south was infested. The Colac Meat Preserving Company was treating 500 dozen rabbits a week. By 1871 graziers in the Ararat district were poisoning to reduce the plague.

During six months in 1884 trappers on Narrapumelap Estate got 21,000 rabbits, in addition to thousands gassed in their burrows.

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POWERFUL OWL

Sighting of a pair of Australia's largest owl, the Powerful, was the highlight of the Club's excursion to Sherbrooke Forest in June. The birds' food is mainly small mammals, and it is quite frequent that the birds sleep during the day with the remains of their last night's feed hanging from their claws. Such was the case with a bird found several years ago at Aireys Inlet by Club member Mr. Eric Bound. This was a double find, for both the owl and its prey in this case the Yellow-bellied Glider, are rarely seen near Geelong.

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NATIVE PLANTS FOR OUR GARDEN

By E. G. Errey

Every State in Australia has many native plants worthy of a place in our home gardens, but until recent years comparatively few had found their way there. The brown boronia from Western Australia has, of course, been well known for generations, and the rosemary grevillea of Victoria and New South Wales is widely grown. Among larger types, the Cootamundra wattle, endemic to a limited area in south-eastern New South Wales, and the red flowering gum, another West Australian, have been used extensively in larger gardens and for street planting.

In the last decade interest in other species of our natives has increased tremendously, and now many types, from ground-cover plants, through small and larger shrubs to small trees, are finding their way into private gardens. Whether one has room only for an odd plant, or is planning a new garden and wishes to grow native plants exclusively, Australian trees and shrubs offer such infinite variety in form, foliage and flower that specimens can be found to suit all tastes.

Geelong gardeners who are also lovers of the bush will already have seen plants in the Anglesea or Anakie districts that would be a delight in cultivation. These include some of the smaller wattles, several grevilleas, correas, waxflowers and fringe-myrtles.

To transplant flowering specimens from the bush to our gardens is most unwise, not merely because most are protected by law. A bush plant only six inches high has an extensive and well-established root system. An attempt to move it, even with a spadeful of soil, would cause so much root disturbance that the plant would be almost certainly lost to the garden as well as to the bush.

Fortunately there are other methods of propagating these plants. Wattles can easily be grown from seed. In the Steiglitz-Anakie region is a feather-leafed species, the Mitchell wattle (Acacia mitchelli) that grows to only three or four feet. Flowers of this one are paler than most acacias, but the blossom period seems to extend over some months. I have collected ripe seed from a plant that still carried flowers and buds.

Another small Acacia found in most open bushland around here is the myrtle leaf wattle (Ac. myrtifolia). This grows to four or five feet and flowers profusely. Beginning a little earlier than the golden wattle, it forms a lovely ground-floor level of colour beneath the deeper gold of the tall species, and brightens up the roadside in the early spring months.

The earliest of the local acacias would be the sweet wattle (Ac. suaveolens). This shrub has long narrow bluish-green leaves, and its cream flowers come in loose catkins instead of balls. The first of them can be found in May and June.

Winter flowers are always sought after, and the bright red tubular balls of the correas are very conspicuous when the bush is otherwise rather dull. In the garden these small shrubs can be kept more shapely than in the wild, where they generally straggle up through other vegetation.

Around Anakie the correas grow in well-sheltered situations, in marked contrast to the open places where the Anglesea types flourish. There, on the exposed heathland back from the clifftops, grow red and yellow variants of this dainty shrub, at the mercy of all weathers and whipped by the salt winds driving in from the sea. The reds themselves show differences in length of bell, some being an inch and a half long, others only half that length.

Even hardier is the white correa, found on sand dunes and cliff faces down almost to tide level. The flowers of this species, instead of forming tubular bells as the others do, open out in the shape of four-pointed stars. The greyish leaves are oval, almost round in shape. All these correas are fairly easily struck from cuttings, and are certainly worth a place among our cultivated natives.

In the Brisbane ranges north and north-west of Anakie grow two more shrubs that should have been brought to our gardens with other members of their genus long ago. These are two grevilleas, both of which appear to be restricted to this area. In fact one of these, a prostrate form of the holly-leafed grevillea, has been catalogued under the name of "Grevillea steiglitziana". It is worth growing for its foliage alone, which has bronze tints in the young stage. Added to this, it has unusual red and green flowers in the shape of wide tooth brushes.

The other is Grevillea chrysophea, the golden grevillea, one of the most common plants over much of thedistrict, growing often right to the edge of the road. The waxy golden flowers, in evidence for most of the year, are unusual in this genus where red flowers predominate. In the garden with regular watering flowering would

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probably be continuous. I have had one specimen blooming from February to November.

Both these species propagate readily by seed or cuttings. As with all Grevilleas, or spider flowers as they are frequently called, the seed falls as soon as it matures, and therefore is not easy to collect. The first species flowers in summer, so ripe seed should be found in January and February. With the other, seed would naturally be available over a longer season.

These few local representatives of the country's diverse flora are sufficient to make a very interesting native section in any garden, and would well repay the small effort required to establish it.

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BRITTLE GREENHOOD

Recent visits to the You Yangs have indicated that Pterostylis truncata, the Brittle Orchid, and commonly known as little dumpy, has not flowered as prolifically as it did last autumn.

However, three new habitats at the You Yangs were located on Sunday, May 24th, to now make a total of five known areas in which it grows, namely Big Rock, east of the picnic ground, top saddle north of Flinders Peak, and two areas near Deep Creek.

P. truncata is one of our rarer greenhoods, having very restricted distribution, and is not found west of the You Yangs. These habitats will be watched carefully following a threat of complete eradication, as the South African Bone Seed spreads in the area.

A thank you to those members of our Club who recently did some man-size pulling of the threatening Bone Seed, around the top saddle, and in the vicinity of Big Rock.

*****

SPRING HARBINGERS

The flowers of Early Nancy are often called the "harbinger of Spring" but usually they are deceivingly early. This year, for example, they were flowering at the You Yangs in June - harbingers of Winter rather than spring.

SOME ORCHIDS OF THE BELLARINE PENINSULA

By Eric Bound

The Bellarine Peninsula lying due east of Geelong, bounded on three sides by water and enjoying a mild climate with a good rainfall, was for many years, a happy hunting ground for the naturalist. The eastern half appears to have been in the main, thickly timbered, with golden wattle (A.Pycnantha) predominating, and an early report (about 1879) describes how a party of reverend gentlemen returning to Geelong from a mission at Point Lonsdale turned south and went crashing and stumbling through the thick bush, finally reaching the Barwon River at what is now Ocean Grove. Under the impact of population and development, this once plentiful bushland is now reduced to isolated pockets, and at the present time a desperate effort is being made to conserve one portion known as Cuthbertsons for a national park, the last virgin bush of any size on the whole peninsula.

Of particular interest are the native orchids which must have been extremely prolific in many parts, and even now can be seen in fair numbers in certain limited places during the late winter and early spring. I recall particularly, after a very wet spring some years ago, while rambling through Cuthbertsons, I found literally acres of wallflower diuris, magnificent specimens with spikes up to two feet in length and carrying multiple blooms of large size.

Another interesting feature is a concentration of trim greenhoods on a building site at Ocean Grove. Surrounded by dwellings and in a rapidly developing area, they are surely doomed, but fortunately several large clumps have been successfully transferred to a spot where they can remain undisturbed in the foreseeable future at least. There is also one particular paddock at Mannerim, which although only of about 70 acres carries no less than 18 varieties of orchids - what a wonderful orchid sanctuary it would make.

The southern coastal fringe with many dense thickets of tea-tree also contains some good orchid areas, one such spot right on the edge of the surfing beach at Ocean Grove carries a concentration of pink fairies (C.Latifolia) which still seem to be holding their own in spite of intrusion by campers and holiday trippers.

In conclusion, I have recorded the following orchids as native to the Bellarine Peninsula and I would hesitate to say that they represent the complete tally. It is pleasing to note that despite the inroads being made on their habitat, most of the varieties listed can still be found, but for how long, who knows?

Microtis Unifolia	Onion Orchid
Thelymitra Pauciflora	Slender Sun Orchid
Thelymitra Rubra	Salmon Sun Orchid
Corybas Diemenicus	Purple Helmet Orchid
Acianthus Reniformis	Gnat Orchid
Acianthus Exsertis	Mosquito Orchid
Acianthus Caudatus	Mayfly Orchid
Eriochilus Cucullatus	Parson Bands
Glossodia Major	Purple Waxlip
Caladenia Dilatata	Fringed Spider Orchid
Caladenia Patersonii	Common Spider Orchid "
Caladenia Carnea	Pink Fingers
Caladenia Latifolia	Pink Fairies
Caladenia Menziesii	Hare Orchid
Caladenia Deformis	Blue Fairies
Diuris Pedunculata	Snake Orchid
Diuris Maculata	Leopard Orchid
Diuris Longifolia	Wallflower Diuris
Diuris Sulphurea	Tiger Orchid
Pterostylis Parviflora	Tiny Greenhood
Pterostylis Nutans	Nodding Greenhood
Pterostylis Nana	Dwarf Greenhood
Pterostylis Concinna	Trim Greenhood
Pterostylis Pedunculata	Maroon Hood

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BIRD NAMES

The scientific names of birds are formed mainly from Greek and Latin words, and although many seem inappropriate, others closely describe the bird. The common White-backed Magpie, for example, is Gymnorhyina hypoleuca - the first name means bare nose, the second under white.

Some names are in the form of a tribute to the man first describing the bird; we have an example of this with the Thin-billed Prion. Pachyptila belcheri which was named in honor of Sir Charles Belcher, a man who contributed much to Geelong ornithology.

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THE CASPIAN TERN

By C. Tingate

There are many happy and interesting episodes in the experience of an ornithologist, but no greater pleasure is his, than that of finding or helping to find a bird breeding for the first time in our district.

Such was the good fortune of Trevor Pescott, Duncan MacKenzie, Tom Fletcher and myself when we found the Caspian Tern nesting on a shell bank in Corio Bay. It was the behaviour of the birds that first drew our attention as they were circling overhead and seemed to resent our presence.

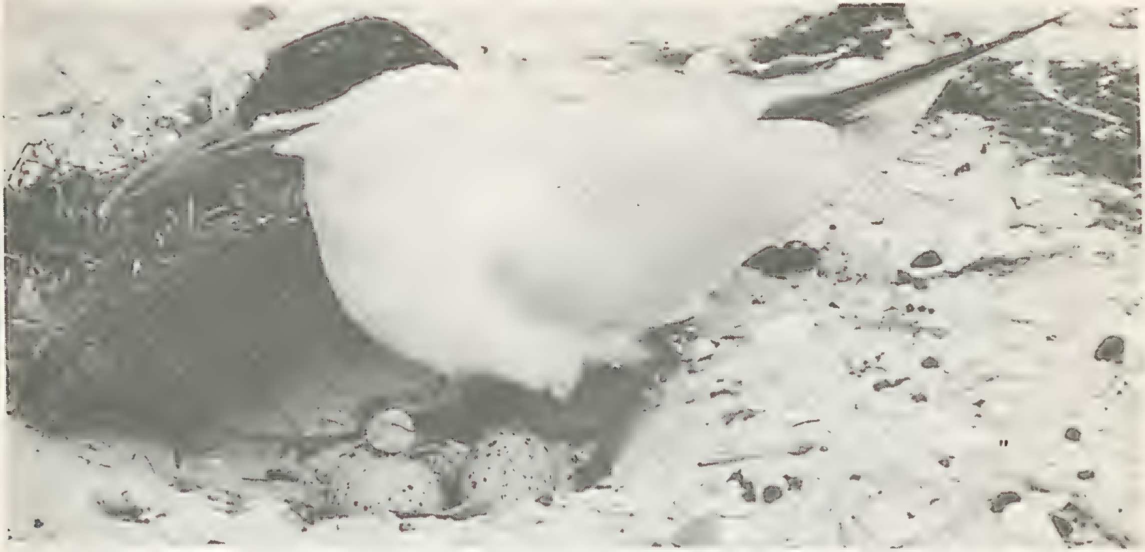
We decided to investigate the shell bank and the birds began to dive down and swoop very close to our heads. We realised then that these birds were breeding and had a nest somewhere in the vicinity so we began to search for their nest. This was rather an exciting experience, as while looking for the nest, we also had to keep an eye on the birds - any bird twentythree inches long, with a four foot six inches wingspan, and a massive red beak commands respect. They both resented our presence very much.

Trevor Pescott called and we quickly gathered round as we realised he had found the nest and there in a hollow among the shells and sand were two handsome eggs of the Caspian Tern. These eggs were oval, rather coarse shelled and stone grey, sparingly marked with spots and blotches of greyish black and umber.

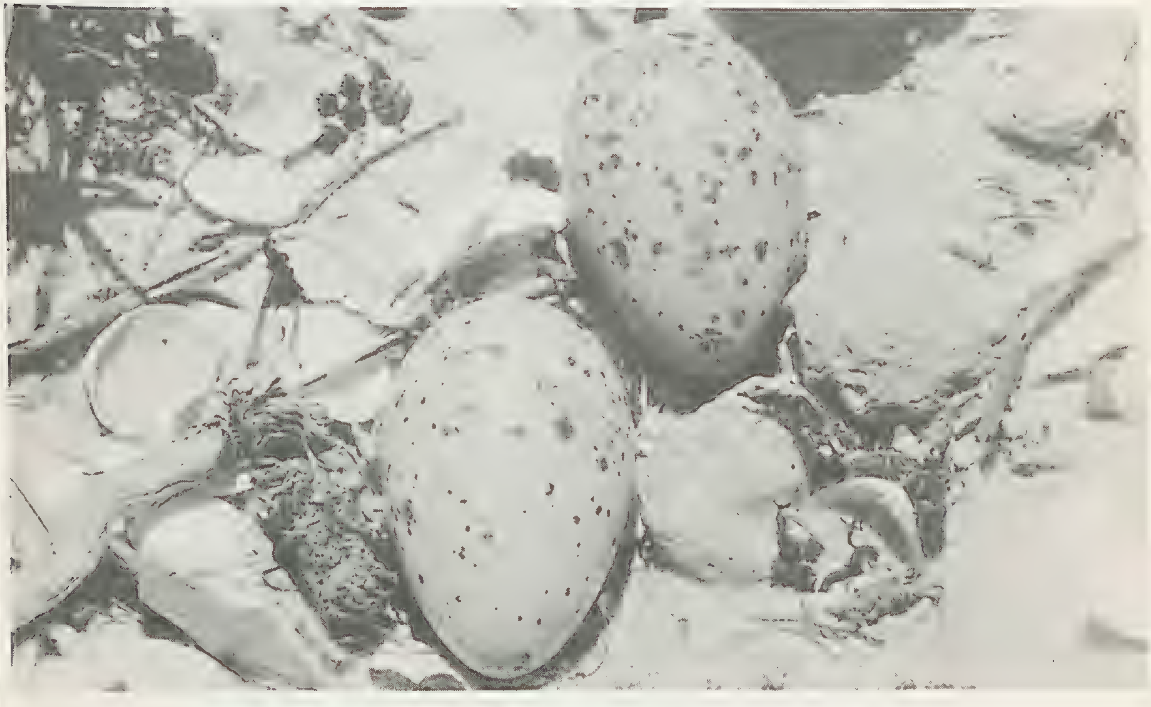
After a brief examination of the nest and eggs we left to allow the tern to return to her nest.

Trevor, Duncan and I are very keen nature photographers so we began to make plans to try and photograph the bird at the nest. We decided to build a hide, not far from the sitting bird. As the shell bank was littered with driftwood, we erected a suitable structure, covered it with seaweed and banked it up with sand. The terns soon accepted it as part of the scenery. It was not very comfortable as the photographer had to be down full length in it, but this has to be accepted in photographing wild birds.

I patiently waited my turn with the camera and when Trevor informed me he had finished taking his pictures, Duncan and I returned to the shell bank. The terns gave us the same hostile reception as before, diving in very fast and swooping very close to us. Duncan waited till my camera was set up and then walked away some distance. It is



CASPIAN TERN AT NEST. PORT PHILIP BAY



NEST AND EGGS OF CASPIAN TERN. PORT PHILIP BAY

Photos by C. TINGATE

often essential to have a helper like this as it deceives the birds. When they see someone walk away, they usually believe the coast is clear and return to their nests. As Duncan walked away, they followed him protesting loudly, then circled back over the hide. I could hear them flying overhead and wondered how long it would be before they returned to the nest.

When one of the birds alighted close to the nest, I became tense with excitement and grasped the bulb of the air release, which when squeezed takes the exposure. The tern stood near the nest for a while, preened itself, then walked over and settled on the eggs. I waited some time before taking my first exposure because some birds are very restless after being disturbed - the tern was no exception. However, she showed no concern for the click of the camera shutter.

I let her brood for some time before I signalled for Duncan to come over to the hide to turn the film round for another exposure. While waiting in the hide for suitable exposures, I had the opportunity to closely observe the sitting bird. It is grey above with a black cap and nape, white below and is altogether a handsome bird.

Under cover of the hide, I was able to observe several other birds at close quarters. Oyster cathers, Eastern Curlews, Fairy Terns, Silver Gulls and many different species of waders came to feed in the shallows near the shell bank.

After taking a few more exposures, I signalled to Duncan who returned and after packing up our gear we left the sand bank. The terns followed us again protesting loudly.

After a while, they left us and we were pleased to see them go back to their nest.

We returned home very thrilled to have found and photographed the nest of this very interesting bird.

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THE FAIRYLAND OF FUNGI

By G. McCarthy

Autumn and early winter are fungus time. It is also a rather lean time for naturalists in other fields, too early for most wild flowers orchids, birds, etc. So why not some pleasant hours in the fairyland of fungus.

These are a fascinating group of plants: though largely neglected, owing to the difficulties of classification and description (there „ are more than 11,000 species of higher fungi). They differ from other plants, in that they have a complete absence of chlorophyll, and cannot manufacture their own food. Therefore, the main thread like body of the fungus, the "Mycelium", lives either as a parasite on living matter, or a saprophyte on dead and decaying matter. But we are interested mainly in the sporophore or fruiting body, which contains the spores, either in gills or pores.

The main groups are Agarics, Polyporoids, Coral Fungi, Puff Balls, Earth Stars, etc. and Vegetable Caterpillars.

The largest and most colourful family are the Agarics or Gilled Fungi, of which there are innumerable shapes, sizes and colors. To my mind, one of the most delightful species of Agaric, are the tiny Mycena, which includes the beautiful little blue Pixies' Parasol, familiar in Sherbrooke Forest. Numbers of these minute gems escape notice, unless one looks closely, as they remain hidden amongst the moss on trees and logs, or under fallen leaves and twigs. There you may see the glint of brilliant red, yellow, blue, or purple.Some of these small Agarics are little bigger than the head of a pin, and so transparent that the gills show through the cap as a pleasing striated effect. The symetrical structure and beauty of these miniatures is more apparent when projected on the photographers' screen: also, this is the only way of preserving them.

During the May holidays, I walked up a shallow stream, at the bottom of a fern gully, out of Gembrooke. There I found numbers of these miniature "toadstools", amongst the mosses of fallen tree ferns and logs, and one would have to be blase indeed not to recall childhood visions of fairies and elves.

So for the Naturalist and especially the nature photographer, it will be time pleasantly spent, searching among the moss and fallen leaves for the tiny Mycena.

*****

BANDING MUTTONBIRDS

By Trevor Pescott

"What a heck of a night to start living!" This was the pensive comment of one of our banding party last April as we sat huddled on the lee side of a sand dune. The time was early morning, an hour or two after midnight, on a night of near gale-force winds which were laced with sleet.

We had been working since 8 p.m., and although we sweated beneath heavy coats from the exertion of chasing young Shearwaters, the wind was too bleak for us to shed any clothing. We had stayed at Port Fairy on the previous day, and now we were at Griffith Island, a sand dune fringed area separated from the mainland by only a narrow tidal channel which was crossed by a stone causeway. And yet on a night as bleak as this, the young muttonbirds really did start living.

By the first week in May, Griffith Island was empty, vacated by all the Shearwaters that for the previous six months had lived there. Not until September would any shearwaters return, then only for a short time while burrows were repaired; then they would be gone until near the end of November when full tenancy would be resumed.

Through banding, it has been possible to find out where the Shearwaters go during winter and early spring, and this was our aim during that vicious autumn night, to band as many as possible with an individually numbered monel metal band.

Results to Date

By extensive banding by many bird banders, scores of thousands of Shearwaters have been marked, and a reliable pattern of migration has emerged from the recoveries. The adult birds leave near the end of March, and the juveniles follow a month or more later. All of the breeding rookeries of our species, the Short-tailed Shearwater, Puffinus tenuirostris, are in south eastern Australia and Bass Strait. After breeding the birds leave Australia and fly across the north end of the Tasman to the north end of New Zealand. Then they swing north and then westward well above New Guinea to Japan; from here they swing north and east, travelling across the north Pacific to Alaska. Then they follow the west coast of America southwards until they are three parts of the way to the equator. Suddenly, they turn west across the Pacific, passing the equator at mid Pacific to strike Australia at the southern end of Queensland. From here to Victoria is an easy flight.

If you plot this on an atlas, you can see how a huge distorted figure eight is transcribed across the Pacific Ocean.

How do we know all this? It is the compilation of recovery data of banded birds in the various places en route.

Age and Breeding

Perhaps the most incomprehensible feature of this migration, however, is not the flight itself, but that the birds do this flight every year, and travel the distance in about five months.

Shearwaters - or the Short-tailed at least - are not sexually mature for at least six years; so that although they return annually to their breeding places, no breeding of these birds takes place for this time. Only one egg is laid, so reproduction is very slow. It has been estimated that a Mutton bird may live up to thirty years of age (would any mathematician like to calculate how many figure eights of the Pacific would be in miles?). Mortality during the first year of the birds' lives must be very high indeed. Figures from a C.S.I.R.O. report states that 0.04% of recoveries of dead birds were yearlings out of a total of 0.13% of the total.

Perhaps it is not a sufficiently reliable figure to work on, but this indicates that 25% of the birds die in their first year. Incidentally adopting these figures it may encourage other bird banders to know that in every 10,000 muttonbirds he bands, he can expect only thirteen recoveries!

Life Cycle

Historically, the Short-tailed Shearwater came to "life" in 1835 when it was given the name Procellaria tenuirostris by the Director of the Rijksmuseum van Natuurlijke Historie at Leiden - his name was Temminek who held the post of Director from 1820 to 1858.

Gould, the father of Australian ornithology gave it the name Puffinus brevicaudus. This generic name was retained, but the original specific appendage was referred to, and now the accepted name is Puffinus tenuirostris. In Goulds "Handbook of Birds of Australia" published in 1865, he wrote of an extract from Flinders Voyage, in which Flinders described a flock of Shearwaters fifty to eighty yards deep, three hundred yards or more in breadth which took an hour and a half to pass, with birds flying at "the swiftness of the Pigeon". Flinders calculated the flock to hold over one hundred and fifty one million birds! What a fantastic sight this must have made.

So much for the archives.

Briefly, the life cycle of the Short-tailed Shearwater starts in September, when for a few days the breeding birds clean out and repair their nest burrows. Then they leave for two months, to return at the end of November to lay their eggs. Young emerge in mid January, and are tended by parents until the end of March or early April when the parents leave them, fat and nearly feathered. They fast for a month, and by the first week in May are flying.

Migration follows and then nesting places are empty until the next Spring.

My friends comment was far nearer the truth than perhaps even he realised. For although life in the Muttonbird comes in January, it is not until its first flight on the teeth of a spray-filled gale that it begins living.

*****

BRIEF REPORT FROM EXCURSIONS SECRETARY

Several of our members have no means of transport and are dependent on the goodness of car owners to provide them with seating.

On the Sherbrooke Excursion, so few cars turned up at our starting point, that our President rather than disappoint those awaiting transport, had to overtax the capacity of his car. This was unfortunate, and I ask for more support on this matter.

Our Committee is most grateful to those car owners who unselfishly provide seating for members each excursion, and equally so, members who have been provided with transport, have frequently expressed their own personal gratitude.

*****

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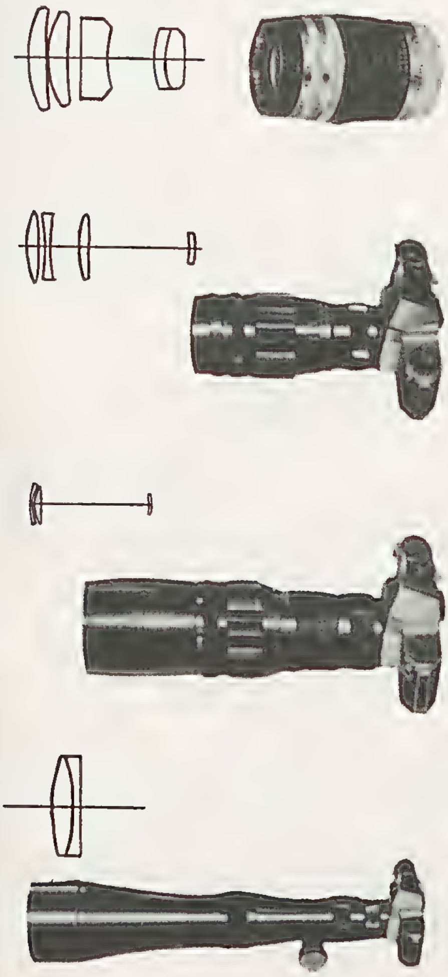
PHOTOGRAPHERS!



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OUR CLUB EMBLEM
By Trevor Pescott

During 1963 it was decided by our Committee to finalise our Club Emblem, and it was by a very close vote that we adopted a replica of the "Small Ant Blue" butterfly, in preference to the Golden Grevillia of the Brisbane Ranges.

The Small Ant Blue, in Victoria, once to be found in isolated areas east of Melbourne, has become extinct in those areas through settlement and the destruction of habitat, so today a small area at Ocean Grove, which includes portion of the proposed National Park (Cuthbertsons) is the only place where this beautiful butterfly can still be found. The larvae of this butterfly has a strange association with a particular species of ant (I. nitidus), which occurs at Ocean Grove.

The butterfly design of our Emblem was supplied by Mr. Andrew Atkins, a commercial artist, with GTV9, Melbourne. Mr. Atkins is a keen student of butterflies, much of his ground work being done in the district of Ballarat, his home town. Our Committee has put a lot of work and thought into our Emblem and trust all members will avail themselves by purchasing a badge to wear on all our Club activities.

*****

INJURED SWIFT DIES

In our last Issue, the story was told of a boy's devotion to an injured Spine-tailed Swift, and all who read the account of its care by Graeme Dumbrell, hoped for a happy conclusion to the bird's affliction.

This was not to be. An early morning phone call on 24th April, passed on the sad news that the bird was found dead in its cage when Graeme went to give it the early morning feed.

Graeme had kept the bird alive for 68 days, a feat which was acclaimed by naturalists as being unique in Australian Ornithology.

Just prior to the bird's death, arrangements were in hand to fly the bird back to its native land, Japan.

Thanks to all those who rallied and assisted in collecting crickets to keep the bird alive, particularly the Hutchinson Brothers, and Laurie Kingsbury, of Drysdale, and Mr. Jack Hood of Allansford. A thank you also to Mr. Arthur Chapman for recording Graeme's effort on movie film.

Our sincere thanks to Graeme for his magnificent effort and devotion, and our regrets that our story did not provide a happy ending.

For this, Graeme is to be made a presentation at the next monthly meeting of the Bird Observers' Club in Melbourne.

*****

ROBIN RETRAPS

By Trevor Pescott

We have been banding Flame Robins each winter at one particular paddock at the You Yangs, and early in June I retrapped a bird which Mr. Duncan MacKenzie banded four years ago in exactly the same place. This record recovery lasted exactly two weeks - for I retrapped a bird which had been banded exactly one week longer, and this time it was my own band!

Mr. Robert MacKenzie, Duncan and I have banded several hundred Flames in this paddock during four years of trapping between April and September each year, and it is gratifying to receive recoveries of this nature.

It seems to me to be quite remarkable that these robins should elect to spend each winter in the exact same locality, for all our banding and retrapping has been within a space of two hundred yards. The birds breed in the Dandenongs, Otways and similar wet forest areas and migrate out each autumn.

*****

GUIDES FOR HIRE

By Ian Trevaskis

At school lately I have noticed two magpies using a Mudlark as their guide for finding food. The magpies follow a few feet behind the mudlark, as it pecks around on the lawn. When it finishes feeding the two magpies rush in and gather up the crumbs.

My brother, David, who goes to another school - Corio Technical - has seen the same thing, the only difference being that the guide is a magpie and its followers two Spur-winged Plovers.

I do not know if this is rare, but it is certainly peculiar.

*****

ROCKING AROUND

By E. G. Errey

Very unusual geological specimens have been brought to light recently by members of a Scout party who took part in a training camp between Aireys Inlet and Pinch Gut Hill.

These are large nodules apparently of an ironstone material. When one was broken across, a central core of a grey talc-like substance about the size of a duck egg was revealed. Around this were four or five successive quarter-inch layers of hard red-brown rock separated by a softer yellowish material, making a lump about six inches by four.

My scouting friend, Mr. N. J. Povey, of East Geelong, said that the nodules varied in size, and most showed a roughly cubic form externally.

Advice on the problem was sought from Mr. Stan Rowe, of the Gordon Institute of Technology. Mr. Rowe classified the rock as iron oxide, the brown layers being limonite (brown iron oxide) and the yellow interspersing material an ochrous form of this. Mr. Rowe thought the smooth talc-like centre was a marine clay around which the limonite had been deposited.

Further inquiries are being made on the phenomenon.

*****

WRITTEN IN THE SAND

Wind blown sand can be a book into which is written, for a short time only, dramas in nature. Recently near Torquay, I checked a stretch of sand for footprints, and found only rabbit tracks. But one of these ended abruptly in a circle several feet in diameter - there were no tracks out. Perhaps the Whistling Eagle circling above knew why the tracks ended so suddenly, with no way out.

BLACK-SHOULDERED KITE

By Ian Trevaskis

On Saturday afternoon, of 27th June, my brother and I found a pair of Black-shouldered Kites nesting in a sugar gum near the Corio Technical School. It was obvious by the droppings around the tree that there were young in the nest. We tried unsuccessfully to climb up to the nest which was about 35 feet from the ground. The eggs of the Black-shouldered Kite are white, coarsely blotched with reddish-brown markings. The nest was a deserted magpie's nest.

We observed the Kites carefully every night after school. About a week after we found the nest we noticed the young were now perching either on the side of the nest or the branches around it. A few days later when we approached the nesting site, the young kites glided off over the paddocks. We watched admiringly as they tested their powerful white wings swooping about the cloudless sky in playful enjoyment at their new-found freedom.

They were now left to fend for themselves and shortly they were gone. This is not uncommon among birds of prey. As soon as the young can look after themselves they are attacked by their parents; puzzled and bewildered they are eventually driven away to find a territory of their own.

The Black-shouldered Kite is a fairly common bird in this district. It feeds mainly on mice, lizards, grasshoppers and other large insects. It is often seen hovering over paddocks or crops in search of field mice, dropping now and then to earth, sometimes rising empty-handed, sometimes with a terrified field mouse. It is also seen perched on stumps, fences or dead trees.

*****

"THE TRACK"

By Garth Palmer

There is an area about seven and a half miles from the Belmont Post Office, between the Barwon Heads and Torquay Roads, which we have named "The Track". It is an area in which there are many species of birds.

Ian Trevaskis and I visit this area all through the nesting season and occasionally through the year to check for anything else of

PALMER - "The Track"

interest. We are at the moment compiling a bird-list of the area.

Some of the birds we have recorded nesting there are: White-faced Heron, Black-shouldered Kite, Raven, White-backed Magpie, Mudlark, Red Wattle-Bird, Eastern Rosella, Noisy Miner, Blue Wren, Spiny-cheeked Honeyeater, Spur-winged Plover, Brown Hawk, Yellow-tailed Thornbill, Red-backed Parrot, Goldfinch, White-fronted Chat, and the Welcome Swallow.

Last year we found a nest very high in a tree which contained a half eaten rat. We noticed on several occasions a Whistling Eagle perched in the tree, quite close to the nest. Once when we approached the tree, the Whistling Eagle flew out and circled around us, slowly, and very low for quite some time before flying off. So this year we are hoping that it will nest in the area.

During the Christmas holidays a fire went through the area of "The Track". A few weeks ago we went out there to see what damage it had done: to our relief it had only burnt a small area, but a tree in which a Brush-tailed Possum had made its home and which also contained a Red-backed Parrot's nest was completely burnt out.

The only native animals we have found there are Brush-tailed Possums.

As the nesting season is approaching we are looking forward to finding new species of birds nesting in this interesting little area.

*****

THE CULTIVATION OF NATIVE TERRESTRIAL ORCHIDS

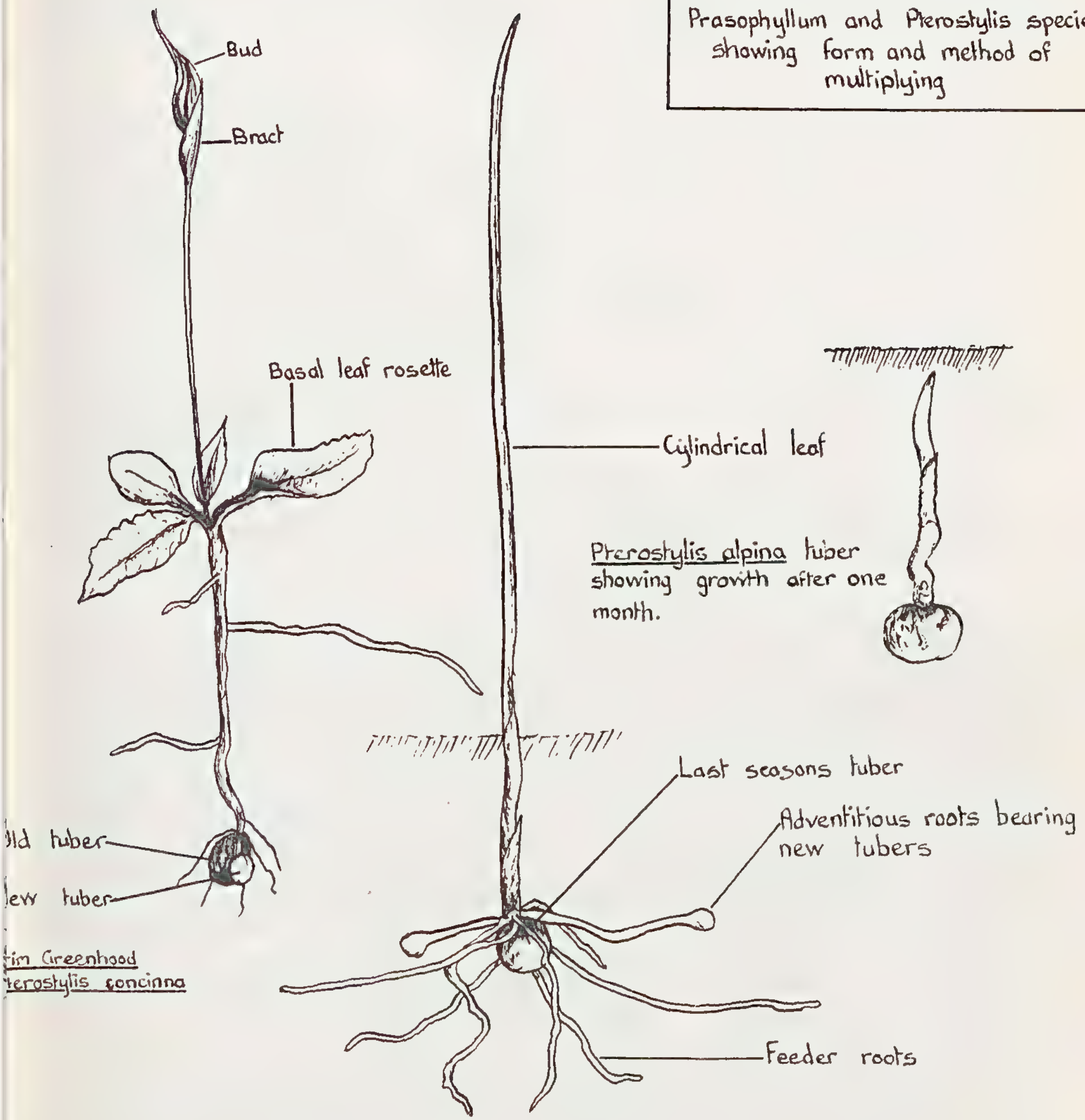
By Geoff Carr

The family Orchidaceae is the largest family of plants in the world and to anyone seeing the diversity and number of species in this area alone finds this fact easily conceivable.

Orchids are recognised from other plants by the flower, which has become very specialised. The tongue, a modified petal has peculiar markings so as to attract the right insect for pollination.

THE FORM OF ORCHIDS

Prasophyllum and Pterostylis species showing form and method of multiplying



GEOFF. CARR

CARR - Orchids

In some orchids the tongue or labellum is movable and when an insect alights on the tongue it flicks against the pollen mass. The pollen is transferred to the insect and then spread. The column is the fused anthers and stigma, and either the pollen or stigma (which faces the labellum) is sticky.

In order to be able to cultivate an orchid it first must be known how orchids grow and in what conditions they are found. The terrestrial orchids possess a tuber which lies dormant during the dry months. When the autumn rains commence the tuber springs to life and in three, four or five weeks the orchid appears above ground, thence breaking into growth and bud. The autumn flowering orchids for example Parson's Bands and the Autumn Greenhood flower before foliage is made, the bud simply growing straight from the earth.

Orchids flower early and toward late spring and summer when the ground begins to dry, the foliage dies and the orchid plant which has now set seed, commences into dormancy. Beneath the ground, the tuber remains alive, but dormant. The tuber often shrinks but expands before growth commences. This tuber will produce a new tuber next season and then die. One tuber then lasts for one season and so carries on the species.

The growing of native terrestrial orchids I find is quite easy providing basic essentials are adhered to and conditions provided. Experience is the best teacher, and after growing orchids for three or four years, cultivation becomes a course of procedure. People often ask questions, for example, "Don't you need a glass-house?" No, certainly not - do orchids have a glass-house in the bush? People also state that they have tried to grow orchids but without success. They are discouraged by lack of success and put orchids on the shelf, declaring that they are hard, if not impossible, to grow. It is usually found that these people do not subject their "charges" to proper conditions. One must accept failure and persevere. It is a sense of profound excitement and achievement if an orchid is flowered in cultivation and many surprises await the grower.

Orchids can be grown in a number of ways - in pots, tubs and in rockeries receiving shelter. I have some Greenhoods growing in a rustic basket hanging in a bush-house. I have seen two terrestrials growing on tree ferns, both in the Otway Ranges, Pterostylis pedunculata, the Maroonhood, and Chiloglottis cornuta, the Green

CARR - Orchids

Bird Orchid, being the species.

Pots, I find, are the best method of growing orchids as the pots can be easily moved about, exhibited and photographed with ease.

The best orchids to begin with are the orchids which grow in colonies in their natural state. These orchids are usually very hardy, flower freely and multiply rapidly. Orchids which grow in colonies are - Greenhoods (Pterostylis), the Helmet Orchids (Corybas), Bird Orchids (Chiloglottis), the Gnat, Mosquito, and Mayfly (the Acianthus group), some Diuris species (Dog's Ears), Leek and Onion Orchids (Prasophyllum and Microtis respectively).

The largest colony of orchids I have seen was a patch of Nodding Greenhoods (Pterostylis nutans) on the Inverleigh Common, a patch some three yards in diameter and containing many hundreds of plants. The thickest patch of orchids I have seen was a colony of Gnat Orchids (Acianthus exertus). There were some sixtyfive plants in nine square inches of earth!

When growing orchids in pots, the three most important points to note are - the soil, the drainage and light and shade.

The best soil to use is a black, sandy gravel, enriched with Eucalyptus leaf mold. This soil adapts well to the pot, drains well and is sufficiently rich for the orchids, as well as being easy to handle. This black, sandy gravel can be obtained from Anglesea. Two parts soil and one part leaf mold is a good mixture to use.

Drainage is of primary importance and few orchids will thrive in a waterlogged soil which soon becomes sour, causing rot in the tuber (especially if it is damaged, so handle them carefully). Charcoal is the very best drainage material to use. Granulated charcoal can be added to the soil to keep it sweet. Orchids prefer an open, inclined to acid soil.

First place a crock over the hole in the pot (preferably a terracotta pot) and fill the pot one third full with smallish charcoal pieces. A layer of leaf mold is put over the charcoal, then comes the prepared soil. Prepared exotic-orchid-compost is found to be very successful where growing Pterostylis species. It is very easy to handle and is quite cheap, being purchased in plastic bags.

CARR - Orchids

The best time to collect orchids in the bush is early in the growing season or during the dormant season when the orchid tuber can be located by the old dry stalk with its seed capsule atop, experience tells. Orchid tubers seldom penetrate the earth more than four inches, usually only one or two inches. Carefully dig around the plant in a circle and then prise the sod out, then either break away the soil and carefully pack the exposed plant in wet moss, or leave the plant with earth attached till you arrive home. Great care must be exercised as tubers and the stem are easily fractured.

If, inadvertently, the tuber breaks off the plant, keep the tuber (with new tuber attached) in damp leaf mold. If the young tuber is advanced enough it will draw nourishment from the old tuber and detach itself. It can then be planted.

When planting plants in pots hold the plant between thumb and finger and carefully pack the soil around the tuber and roots, then tapping the pot to settle the earth. The soil must be kept at the original level on the plant. Soak the soil well.

Space the tubers around the pot when planting tubers and place about an inch of soil on the tubers, keeping in mind that a space must be left between soil and rim of pot for water. Soak the soil well. Plants usually appear in three to six weeks. Do not be impatient and probe the soil for shoots.

The soil must be kept damp at all times during the growing season and not over watered, else rotting will result.

Towards the growing season when orchids seed and leaves begin to wither gradually diminish the water supply. When the foliage is dead, keep the soil only slightly moist for about six weeks, after which the tubers may be lifted and stored in soil in airtight containers or left in the pot to awake and grow in autumn.

Plant tubers again in late summer and when autumn rains begin water the soil. It is wise to label the pots with aluminium tags. This gives a scientific approach, species become familiar by botanical names and further knowledge is gleaned about the species. Weak liquid manure is beneficial to plants when in bud as it increases quality of blooms.

CARR - Orchids

Orchids usually take several seasons to settle down to "captivity" and then they will usually thrive. Either this or they will scorn all anxious attention, fade, as if pining for a lost love, and die. It is best to leave these species alone till an extensive knowledge is gained and one feels he is able to handle the species.

Some species of orchids live in symbiosis with eucalypts and fungi and never take to cultivation. Death sooner or later is assured. Notable among these orchids are the leafless, mid summer flowering species the Hyacinth Orchid (Dipodium), the diminutive and very quaint Elbow Orchid (Spiculaea) and the Potato Orchid (Gastropodia).

The Hyacinth Orchid is one of our most beautiful orchids, adding a pink flush to the hard dry ground in December and January. Up to five new tubers can be produced in one season from among others, the common Pterostylis species. Overcrowded pots should be thinned out. If orchids become too numerous, they can be replanted in the bushland.

Pests of orchids include among the foliage and flower feeders, grubs, slugs and snails, wood lice can get into the bottom of pots and eat tubers, and aphis and scale sometimes suck plants, causing flowers to shrivel and die. Treat for these pests in the conventional way. A grasshopper may find its way into the bush-house and nibble the orchid flowers for morning or afternoon tea.

When collecting plants in the bush, take careful note as to the light and shade position and in cultivation place the orchids in these observed positions. If a bush-house is not available, a protective tree or bush provides shelter. Watch for dogs, cats, wind and children. The north or east side of a bush-house will be most suitable for the orchids. Greenhoods can take the most shade. Never subject orchids to direct sunlight all day long.

Never go away on vacation leaving the orchids to fend for themselves and take precautions against pests. Record successes in orchid cultivation.

Remember, all native orchids are protected by Law and should be collected with discretion. Never collect more than three specimens.

Some species to begin with -

Greenhoods:	Nodding Greenhood	Pterostylis nutans
	Dwarf Greenhood	P. nana

CARR - Orchids

Greenhoods: (Contd.)	Maroonhood	P.pedunculata.
	Autumn Greenhood	P.revoluta.
	Trim Greenhood	P.concinna.
	Tall Greenhood	P.longifolia.
	Blunt Greenhood	P.curta.
Acianthus:	Mayfly Orchid	A.caudatus.
	Mosquito Orchid	A.reniformis.
	Gnat Orchid	A.exertus.
Leek Orchids:		Prasophyllum
Onion Orchids:		Micistis
Helmet Orchids:		Corybas
Bird Orchids:	Autumn Bird Orchid	Chiloglattis reflexa.
	Common Bird Orchid	C.gunni.
Fringed Spider Orchid:		Caladenia dilatata.
Waxlip Orchid:		Glossodia major.
Parsons Bands:		Eriochilus euculatus.

Such is the cultivation of the terrestrial orchid, a most rewarding and fascinating experience.

Ranging from the Mountains to the Plains, to the Hills, Swamps and Sea Coast, from one to over fifty inches in height, are the orchids, gems of the countryside.

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LYRE BIRDS AND POWERFUL OWLS

The Sherbrooke Excursion, held on 21st June, was very well attended and luckily the rain held off. Many Lyrebirds were observed throughout the forest. After lunch, members were escorted to see a pair of Powerful Owls (Ninox strenua), the largest member of our Australian Owls. The specie is never common and to many it was a new bird.

Recent district sightings of this specie have been made at Aireys Inlet, Gum Flat and Anakie.

***

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CONTENTS

Page
Editorial 1
Shore Birds & Their Habitat - By Noel Young 3
Naturalists' Holiday - By Joyce Hunt 7
Magpie Mortality 12
Notes on Some Tasmanian Birds - By P.E. Jeffery 13
Consistent Nesters - By Trevor Pescott 17
Trees By the Roadside - By L.W. Elms 18
Breamlea Middens - By Trevor Pescott 23
Junior Section 24
At Random 27
Ground Nesting Birds' Peril - By Jack Wheeler 31

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COVER PHOTOGRAPH

Young Swamp Harriers - Drysdale 1964.
Photo by J. Wheeler.

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EDITORIAL

At the moment I am reading a book by Armand Denis, the famous Naturalist Photographer. In this book he states his reasons for devoting his life to the plight of the world's wildlife. He remembers Africa before the First World War, when great herds of animals trekked in endless procession across the plains, and large prides of lions lived and hunted in relative security. Now the plains are almost barren of the great herds, and it is a rare occurrence to see a large pride of lions.

We in Australia are facing the same type of problem. True, we have never had the quantities and types of animals that Africa had, but our Wildlife situation is just as urgent, and just as acute.

The greater part of our wildlife centres round the coastal plains, and here too, man has settled in his largest numbers. We have, it is sorry to say, taken much from our wildlife in our thrust towards progress, and given very little in return. Numbers of our flora and fauna have become extinct through our interference, and a frightening number verge on the very brink of extinction.

It falls on man to now rectify this problem. For much of our wildlife, the point of no return has been reached. The time for thought and discussion has passed, and we must act immediately.

In what way must we act? To conserve the balance of nature, we must preserve habitat. Without natural habitat many of our creatures cannot survive. Nature can (over a long period through evolution) adapt her creatures to new surroundings and a different way of life. But unfortunately we cannot wait that long.

Recently, I spent a weekend at Portland and visited the proposed Lower Glenelg National Park. No comparable area in Victoria provides such a wealth of Geographical features, Flora and Fauna. And yet the Portland Field Naturalists Club are faced with a hard battle to have the area proclaimed. Why should this situation exist? Don't we owe it to ourselves and our wildlife to conserve what we can, now?

Admittedly, there is a growing realization in the general public to the urgency of the wildlife problem, but this interest must be turned to demand for more sanctuaries, preserves and National Parks where our wildlife can stand a fighting chance to build itself back to safer numbers.

The value of wild creatures in maintaining a balanced ecology in which man can best thrive cannot be disputed, so let us not deny ourselves and our wildlife this right, let us act now before it is too late.

*****

The Editor would like to apologise for the following errors which appeared in Vol.1 No.2 :

(1) Article "Spiders" - Page 5. Anthropods should read Arthropods.

(2) Article "Orchids" - Page 21. The first letter of all specific names should be in small letters.

(3) Article "Club Emblem" - Page 30. Author should be Jack Wheeler.

(4) Article "Swift" - Page 31. Should read Jack Edge, not Jack Hood.

(5) Article "Orchids" - Pages 39 and 40.

Gastropodia should read Gastrodia.
A.exertus should read A.exsertus.
Miscistis should read Microtis.
Chiloglattis reflexa should read Chiloglottis reflexa.
Eriochilus euculatus should read Eriochilus cuculatutus.

***

SHORE BIRDS AND THEIR HABITAT

By Noel Young

It is not always realised that birds are the most important vertebrate shore animals. We know that a great many of our birds are specialised for shore life, and this in itself, indicates that the sea shore, or to be more explicit, the area between high and low tide marks, is an abundant source of food.

In the struggle for survival amongst living creatures, over aeons of time, every "biological niche" has been filled in one way or another. Every environment or habitat seems to have its own plants, herbivores, carnivores, parasites, predators, communities or colonies. Each species of animal has a certain capacity to maintain itself, and this capacity is matched against an environment made up of all the factors that influence its life. If the net result of all these elements favours the species it is successful, and in this way the balance of nature is maintained.

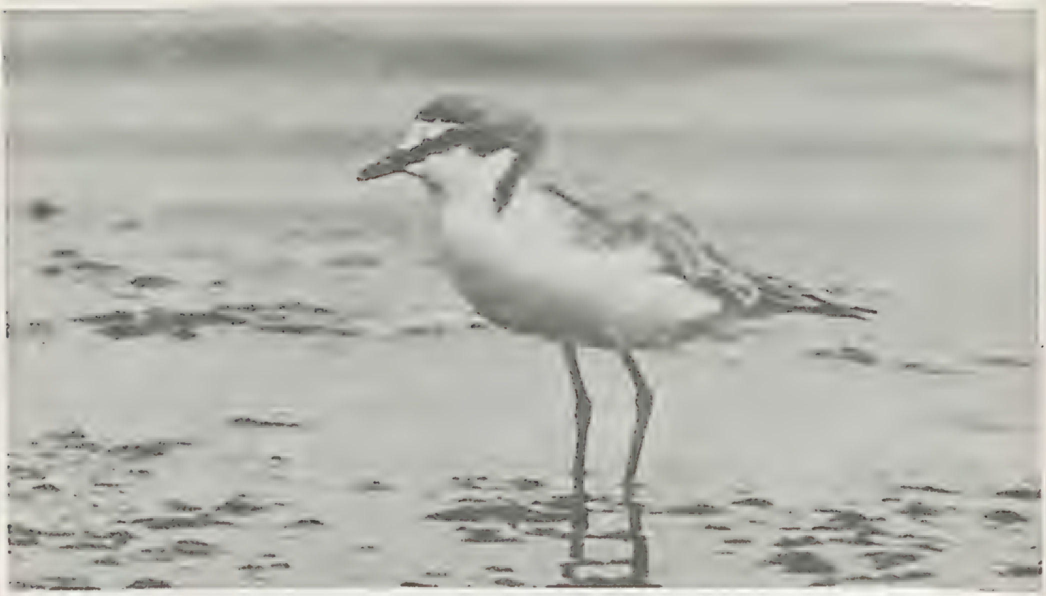
The habitat with which we are concerned may be subdivided, as there are many different types of shore. In general, there is the rocky shore, the sand beach, and the estuaries.

The rocky Shore is usually an exposed region or headland, upon which the waves beat mercilessly, but its crevices, cracks and generally uneven surfaces provide refuge for a number of animals. The power of the moving water is tremendous at times, but nooks and crannies are not greatly disturbed, as the outer surface of the rocks take most of the beating. Animals may be trapped in small pools when the water recedes, or may not find sufficient cover, but in general they are difficult prey for birds, and the environment is not normally a favoured one.

The sandy beaches would provide an apparently easy feeding ground, but for the fact that it is an unfavourable place for marine animals, because of the shifting sand caused by the changing tides and the pounding of the waves.

Beaches may vary in width from a few feet to almost a mile, and may be more or less sheltered, but they have a population of fewer species than any other marine habitat.

The sandy beach merges into the mud bottomed estuaries and inner bay areas, and here the animals are not exposed to the beating surf. Much detritus accumulates from decaying plants and seaweed, growing around the area and brought in by the tidal currents;



RED CAPPED DOTTERAL – Mud Island

GREY and GOLDEN PLOVERS – Mud Island

PHOTOS By N. YOUNG

and this forms the main food of the aquatic animals. The" tidal movement is important to the animals, as it stirs up the detritus and brings it within reach of their siphons or tentacles.

Also important is the condition or consistency of the bottom material. This varies from thin slimy mud, through thick mud to silt and sand nearer the entrance.

Those regions where the bottom is neither slimy mud nor shifting sand have the greatest animal population. Permanent burrows can only be made in this stable sandy mud, and consequently the estuaries and back waters carry a most abundant animal life. It is in these places we are most likely to find the feathered predators.

A very significant factor affecting the lives of the animals in these areas is the exposure at low tide. When the water recedes, most of the animals living on the sub-aqueous surface follow it out, but some burrow down, and thus remain moist until the tide returns.

The heat from the sun does not affect them because of the evaporation which keeps the temperature down. Animals which live permanently below the surface, cease operations until the return of the tide.

As stated at the beginning, the shore birds have significant effect on these little animals. Mostly the birds are interested in the softer bodied creatures like shrimps, isopods, various worms and sand hoppers (amphipods).

The cosmopolitan Turnstones feed mostly on rocky beaches, where they turn over small stones in search of worms, or sand hoppers and other crustaceans.

The Oystercatchers use their strong flattened bills to prise open the valves of oysters and mussels. The Sooty seems to prefer the rocky beaches more than the Pied.

Sandpipers run up and down the beach in front of the waves, picking up sand hoppers, mysids, isopods, worms and anything similar that is edible.

Sanderlings have similar habits, and also have an uncanny knack of finding Grunion eggs near the surface of American beaches.

Once the eggs are found, a flock will collect for the feast. The Grunion is the famous little fish which breeds on the beaches of southern California, laying its eggs in the sand at highest spring tide, and escaping on the next wave. It comes ashore at night to avoid falling prey itself to the birds.

Godwits feed along the beach, shoving their long beaks into the sand for crabs and worms.

Many birds are more specially adapted to foraging of this kind.

Long bills and legs are possessed by the Stilts, this presumably giving them more scope than many other waders. The long bill of these and other birds is often flexible, and the tip very sensitive. In the mud, the bird can detect any likely prospect and then open its bill enough to grasp it.

The upturned bill of the Avocet is no doubt a further modification, possibly for greater structural strength.

The waders are very abundant in the summer and take a great toll of above and between tide life. They are particularly fond of worms and crustaceans and their feeding may have quite an influence on the habits of shore animals, perhaps causing them to become nocturnal or at least to be very wary.

At night, most of the animals of this zone become much more active and expose themselves more.

Finally, it is interesting to note that some species are developing evolutionary tendencies to become land dwellers, and these must evolve habits which afford some measure of protection from the feeding of shore birds.

****

EDITOR'S NOTE

The Article on the Red-Back Spider which was to have appeared in this Issue has been held over to Issue 4.

***

NATURALISTS' HOLIDAY

By Joyce Hunt

"Watch out for Brolgas", said John as we left Lismore in the Western District. "They used to be around here, but they have probably been driven further out by closer settlement".

So I watched out for a Brolga, but in vain. Between home and Barunah Plains, we saw Hawks, Wrens, Martins, Ravens, Tom-tits, Rosellas, and so on, but nothing more unusual than a score of White-faced Herons, until we saw a nest built in one of the wire baskets provided for that purpose by the P.M.G. to prevent Magpies from building among the wires, adding insult to injury by using pieces of P.M.G. wire.

A glimpse of white in a roadside tree brought the car to a standstill and glasses into position, revealing the lovely pink and white of ten Corellas against the dark green of the leaves.

Spurwing Plovers, Mountain Duck and Kookaburras were noted, and then, near Mooralla, a dozen Emus only one hundred yards away. Unfortunately, they were camera-shy, and sped away on our approach.

John said that if I were to lie on the ground behind a bush and wave my hat, their curiosity would get the better of them and they'd come quite close. This suggestion wasn't carried out because (a) it was a new hat, (b) the ground was wet and sloppy, and (c) we didn't have time anyway!

White Cockatoos and a Thrush were seen near Glen Isla, also some nasty-looking pieces of broken bottles all over the road. Stopping to sweep off the roadway, we sighted a Wedgetail, and a little further on stopped the car on seeing another Wedgetail in a tree quite near the road. Observed closely with the aid of glasses, the noble head and powerful beak were clearly seen.

After a while it took off heavily through the trees, then up, up into the grey sky, circling with its mate - their flight so seemingly effortless, and the marvellous wedge-shaped tail tilting from side to side, according to the air currents. So fascinating is the flight of this King of Birds that much time could be spent observing it, but we had to keep moving.

Magpies seen during the three-day trip must have numbered thousands, reminding us that we saw only fiftyfour in a 1200 mile tour of Tasmania a year ago. Only one Black-back was seen this weekend, this being near Wonwondah North. A few Red Lowries, a couple of Mickey Minahs and twelve Galahs were also noticed in this area.

We stayed overnight at Horsham, lunch having been taken in the car at Hamilton where the weatherman put on a show that in the jargon on the movie world would be described as Colossal! Stupendous! Magnificent! Fantastic! Within minutes the gutters were overflowing, visibility was practically nil, hailstones pelted on the roof of the car and piled up against the windscreen while heaven's artillery roared, and lightning flashes stabbed the surrounding whiteness.

We had hoped for good views of the Grampians between Hamilton and Horsham, but rain and cloud prevented all but a few glimpses of this rugged grandeur.

On Sunday morning we turned off to Natimuk Lake and suddenly the sky was darkened by hundreds of Mountain Duck rising, wave after wave, from a hillside of sprouting wheat.

On our left was the Lake, at the edge of which were more Mountain Duck and a solitary Pelican. This fellow caused us much amusement as he continually spread his wings, advanced a few steps, stopped, dropped his wings, then lifting them repeated the spreading and advancing operation over and over.

Whether this behavious was meant to impress the Mountain Duck or to intimidate them, we didn't know, but whatever the motive it had no appreciable effect as the Ducks were completely unimpressed, merely stepping aside if he came too close, but otherwise ignoring him.

Beside the Lake was a sort of jetty that ended in nothing, and about one hundred yards from the water's edge was a diving tower! Pipes attached to a pump ended far from the water's edge.

We were told that for the last three years there has not been sufficient rain to fill the Lake. It would be a lovely place, one imagines, when full.

There is a road up Mount Arapiles, and it was most disappointing that it should be so overcast with light rain on the morning of our visit. It should be a wonderful place for bird life, but the only feathered friends we saw were a couple of Red Lowries and Currawongs, a Willy Wagtail and a Red-browed Firetail.

Right near the top, two Tom-tits frolicked on the rocks only feet away from us.

On a clear day the view would be glorious if the brief glimpses we had through the rain and mist were a true indication of what lay below. But the surprise of this early morning climb was the pair of Wallabies on the path in front of us. Which pair got the bigger surprise - the marsupials or the humans - is a moot point.

The wallabies were grazing contentedly beside the roadway when our "mechanised monster" turned the bend, disturbing their breakfast. Two hops and they were off the road and the car was stopped. Then followed three long, long minutes as we watched from the car and they stood, ears up, all alert, yet curious, looking back at us over their shoulders. Not a movement in either group, and utter silence!

It was impossible to get a photo from inside the car, and the slightest movement would have caused them to bound away, so we just watched until, tired of waiting, they hopped off among the trees, presumably to resume the breakfast so rudely interrupted by a couple of members of the Geelong Field Naturalists' Club!

*****

Mile after mile of red gum country evoked numerous comments on the beauty of the trees, the lovely shapes, the size, and the glorious markings of the trunks.

Many of them had had limbs lopped, possibly because they were deemed to be dangerously near the road; and, wet with the rain, the rich red colour of the exposed wood added brightness to a dull morning. An occasional heap of red gum sleepers reminded us afresh of the wealth of our wonderful native timber in this State.

Quick flashes of colour were added by the flight of Rosellas, Red-backed Parrots, Mickey Minahs, Mudlarks and Galahs. White flowers on a tree turned out to be a flock of Sulphur-crested Cockatoos;

and beside the road, obviously hit by a car, lay a pathetic heap of yellow and white feathers, all that remained of the unlucky one.

We just had to stop when we saw eight White Cockatoos, two Mountain Duck and a score of Ravens all together, evidently having an argument.

Using the shelter of a shed, and urged on by yours truly, John stalked them, ever so cautiously, camera in hand. He had previously told me that a White Cockatoo is "the shrewdest thing in feathers" and that he didn't have a hope of getting near them, but I kidded him on to try.

Of course, they didn't wait. They couldn't possibly see him, but they must have known somehow, for the Cockatoos and Ducks flew off, leaving the Ravens in possession of the paddock.

Not far from Ullswater, John's attention being on the road, mine was attracted by something faintly resembling grey Emus in the distance. "Are those birds?" said I, hesitant-like. "Sheep" said John, glancing casually in the direction of the ploughed paddock I indicated.

I made a quick mental note that if we couldn't tell sheep from birds at a distance of twenty chains we should not be farmers!

"Birds" said I, a little more firmly. "Sheep" said he, quite quietly. "Birds" said I, quite firmly now. "By Jove, you're right! I saw one move!" said John, slamming on the brakes. "Brolgas!" Brolgas! At the magic of the word we were out of the car like a bullet from a gun, glasses raised to watch this new-found wonder.

About sixteen of these lovely birds were feeding on the newly turned earth little more than a quarter of a mile away, while eight or nine more stood beside a small lake.

The camera clicked twice, but the dullness of the day and the distance of the birds gave very little promise of much in the way of a pictorial record.

A few of those by the lake spread their wings, and flew off heavily to join the others, and oh, how we wished that we'd been nearer, to see them more closely. We had travelled two hundred miles from the spot where John had said "Watch out for Brolgas".

A little further on, we stopped for a "cuppa" in the sort of spot beloved by little birds, and here we watched a Scissors Grinder just above our heads, numerous Fire-tails, several Red-backed Parrots, Jacky Winter and an unidentified bird that could have been a Tree-creeper.

Approaching Edenhope, there appeared to be a flock of Pigeons, but suddenly they wheeled and a flash of silver appeared, changing suddenly to pink and then to grey; back to silver and then pink again. Sixty Galahs, wheeling and turning, truly a lovely sight in the watery sunshine of a dull noontide.

Lake Wallace, a symphony in grey beneath masses of grey and white clouds, harboured numerous Swans, some Plovers and Cormorants; but its sporting equipment, like that of Lake Natimuk, was far above the level of the water.

In South Australia now, we went straight to Narracoorte to wait for the inspection of the caves at 2 p.m.

While trying to dodge showers and shelter from the most unexpected of them, we threw pieces of biscuit to Mum and Dad Magpie, who, with Junior, came quite close. Was Junior a very late baby, I wonder, or very early?

Blue Wrens were busy in the low bushes, and a Honeyeater we couldn't identify was in the Banksia blossom. However, there was no mistaking the call of the Little Wattle Bird nearby, whose curious repetitive call always reminds me of a gramophone needle caught in a broken record.

In the caves - only one of which we had time to inspect - are Cave Crickets - rather like a Daddy-long-legs, with small thin body and very long back legs. They inhabit limestone caves, but one wonders what they find to live on.

Just outside Narracoorte there were three Emus in a paddock with some sheep; but they weren't a bit co-operative when we wanted to photograph them.

"Father Wood's Tree" was noticed, and soon we were in the grapevine district around Penola. Thousands of acres of pine plantations and a large timber mill make up the Nangwarry and Tarpeena areas.

Here I requested the chauffeur to turn off to Kalangadoo because I liked the music of the name. We saw a distant glimpse of the race-course, a group of small part-aboriginal girls, one Kookaburra and a Scarlet Robin - the first Robin in four hundred miles.

Leaving Mt. Gambier, we had a brief look at the Valley and Brown Lakes, and the famous Blue Lake which, like the Blue Danube, isn't! Not just then, anyway.

Long before we reached Port McDonnell our nostrils were assailed by the smell of rotting seaweed, which we found heaped along the entire beach.

The only birds were Seagulls and a Pied Cormorant.

The condition of the road, the constant drizzle and the absence of bird life between Port McDonnell and Nelson made this the worst part of the trip, though we were told that there used to be many birds there, and that the Grass Parrots for the Adelaide Zoo were obtained in that area; but since the advent of 1080, bird life has disappeared.

Emerging suddenly from poor, scrubby country, we came on a patch of trees white with blossom. Oh well, I suppose we could easily mistake White Cockatoos for blossom if we could mistake Brolgas for sheep! Brolgas? Isn't this where we came in?

*****

MAGPIE MORTALITY

A drive along many of our outer suburban and country roads during Spring, will bring to light many dead Magpies by the edge of the road; victims of passing cars. A closer inspection will show that most of these birds are young ones, not long out of the nest.

Study has shown that one of the greatest mortality areas in a Magpies territory, is that area which has its boundaries along a roadside. You can help in lowering this mortality rate by blowing your car horn when birds are seen near the road.

NOTES ON SOME TASMANIAN BIRDS

By P.E. Jeffery

While holidaying during December and January 1962 in Tasmania, I endeavoured to observe as many of the fourteen indigenous species as possible. As our holiday was not for this sole purpose, I was unable to cover a great deal of the State.

The area covered fairly thoroughly was in and around Ulverstone, while we did a number of day trips to Great Lakes, Smithton and Stanley, Launceston and Deloraine.

The rainfall in the first area above, varied between 35" and 100" per annum; consequently, most of the bush areas were very thickly covered with vegetation, resembling much of the Otways. Because of this disadvantage, most of my observations were made on the fringes of the bush and rural land.

I shall endeavour to describe briefly the species I recorded, illustrating as to how they were identified.

Firstly, the Tasmanian Native Hen (Tribonyx Mortierii): this bird is similar in build and actions, although slightly larger to our Eastern Swamphen. Its colouring is generally dull greenish brown with green bill and legs.

The noted feature of this bird is that it is assumed to be flightless. Its only attribute to offset this disadvantage, is that of it being a very fast runner. Birds which have wandered on to roads have been chased up to 30 m.p.h. by car.

The farm house we stayed at was situated above a swampy gully, and consistently every night the rasping noise, similar to that of a swing-saw, issued from the swamp. This sound was, of course, the voices of the party of native hens which lived there. This bird, though common, is shy to human approach.

The Tasmanian Masked Owl (Tyto castanops) is the next of the indigenous species in check list order. I regret to say this was one of the fourteen species which was not observed. The bird is thought to be a sub species of the Mainland variety (Tyto novae - hollandiae).

The Green Rosella (Platycercus caledonicus) was a very easy observation, since their numbers were large and there were no species with which it could be confused. This bird, in appearance, is

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similar to the Yellow Rosella of the Mallee areas. The Tasmanian bird differs in that it has a greener colouring."

On numerous occasions I watched these birds as they attacked apple orchards and concluded that their eating habits tended to be somewhat voracious.

The Dusky Robin (Amaurodryas vittata) is quite a common bird, being slightly larger and more robust than other Robins. It seems to take the place of the Yellow Robin (Eopsaltria australis). This drab coloured little bird is of greyish-brown colouring and is quite friendly and confiding towards humans. One of its habits is to perch for durations on stumps and fence posts, and thus it is often known as the Stump Robin.

The Tasmanian Thornbill (Acanthiza ewingii), also known as Ewings Thornbill (after Rev. R.J. Ewing, an early Tasmanian Naturalist). This bird is similar to the Brown Thornbill, and as it occurs in the same areas, positive identification is left to the competent bird watcher.

I was with Mr. Lester of the Devonport Field Naturalists Club when this bird was pointed out. It was supposedly lighter in colouring than the Brown Thornbill.

The two Tasmanian Scrub Wrens, the Scrub Tit (Acanthornis magnus) and the Brown Scrub Wren (Sericornis humilis) are both difficult to observe clearly, because of their habit of frequenting low scrub and thick bushes.

The Scrub Tit has two prominent white spots near the shoulder, while its tail is reddish. Other than these features, the two are similar in general colouring. Even one of the Scrub Tits calls resembles the loud call of the "Brown". The latter has been referred to as the "alarm bird of the scrubs" because of this loud call. These two seemed to have replaced the White Browed Scrub Wren (Siricornis frontalis) which does not occur on the island.

The Forty Spotted Pardolote (Pardolotus quadrogintus) was another of the species which avoided me. This species feeds in the tops of trees, similar to the other Pardolotes, and as I was confronted with stands of Eucalypts varying in heights from 200-300 feet, identification of Pardolotes was somewhat difficult. I didn't even get the chance of counting the forty spots.

The two endemic honeyeaters of the genus Melithreptus were very common and except when in the "tall timber" they were easy to identify.

The strong billed (Melithreptus validirostris) seemed the larger and more robust of the two. Its white nape and cheek contrasted vividly with its black head as it moved in the leaves.

The Black Headed (Melithreptus affinis) lacks the white nape stripe, while the whole head and throat are black. The Black Headed seemed to keep more to the upper blossoms and branches than the Strong Billed.

Both birds have the blue about the eye, although it was not as conspicuous as the "orange eye" of our White Naped Honeyeaters.

I noticed on a couple of occasions the noted feeding habits of the Strong Billed, in levering and splitting the bark by using its strong beak when in search of food.

As is the case with many birds in Tasmania, various species occurring in the Eastern States have been replaced by indigenous species on the Island.

The Yellow Throated Honeyeater is no exception to this observation. It is the only representative of the genus Meliphaga on the Island (M. flavicollis). The species it replaces is the White Eared Honeyeater (M. leucotis). The Yellow Throated is probably the more attractive of the two. The white ear spot is not so pronounced with the Yellow Throated, but in addition it has a yellow tuft behind this ear spot, and a vivid yellow throat.

This species has been known to do the same trick as his closely related "brother" - that is, of alighting on some innocent human's head endeavouring to obtain hair for nest lining.

The Yellow Wattle Bird (Anthochaera paradoxa) was the bird I most of all wanted to see. I had admired various illustrations of it ever since I first started bird watching, but as luck (or circumstances) would have it, this bird was not recorded.

The last two species entertained me in much the same way - in that a Black Jay (Strepera fulignosa) was pointed out to me while tra̋velling, and I didn't meet up with the Black Magpie (Strepera arguta), also known as the Clinking Currawong, at all.

During my stay, I witnessed the decline in the White Backed Magpie population, by not recording a single bird at our residence. The only birds I saw (on our way back to Devonport) were recorded on our return journey.

The Spur Winged Plover seemed to have gone to the opposite extreme, as it was common to see birds scattered over paddocks in numbers up to fifty per acre, over quite large areas.

In conclusion, I was generally disappointed in bird population. I don't know if I clashed with any migratory trend in the areas I visited, but there just did not seem to be the numbers of birds in all areas of bush to what we would find in Victoria, over the summer months.

***

CONSISTENT NESTERS

By Trevor Pescott

Just how long will one bird - or pair of birds - use a particular nesting site? In 1956, I found a Kookaburra nesting in a hole in a Red Gum at the You Yangs - the same year it was apparently found by another young man, which accounted for the disappearance of the eggs. I later became acquainted with the man who became an excellent photographer after an early start as an egg collector.

Each year the nest site was checked, and the bird was found nesting. This year for at least the eighth successive year, the Kookaburras again have eggs.

Other birds have similar records, and it seems that only severe interference will force many birds to forsake their traditional nesting places. This is particularly the case hollow-nesting birds, but certain other stationary species also nest consistently in the same place, year after year. One good example of this is the common garden-loving Blackbird, which will nest in the same corner of the garden for many years in succession.

Eagles, of course, are well known for their habit of returning to the same nest, and this accounts for the enormous nests occasionally found.

TREES BY THE ROADSIDE

By L. W. Elms

Have you ever looked down on the Victorian countryside from an aeroplane or the top of a mountain? If so, you have probably noticed how prominently the road system stands out, being plainly outlined by the trees along the roadside.

In most Districts, these are in strong contrast to the pasture and crop areas inside the farmers' paddocks, and it is to be regretted that so much of our country is treeless. Even well placed windbreaks would shelter the cattle, control wind erosion of crops such as has recently occurred in the Mallee, and would encourage birds which, in turn, would control insect pests on the land.

Actually only 4% of our Continent is natural forest area, and this is restricted to the coastline, where man's settlement has made inroads on the forest to produce cultivated lands.

These roadside trees fall into two groups, viz.

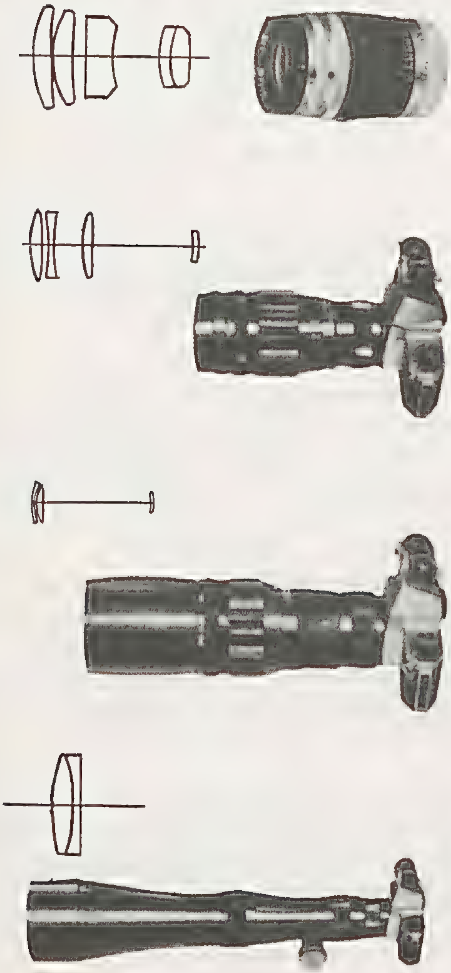
(a) natural timber, which grew in its normal conditions, with undergrowth furnishing a forest floor, and small birds controlling the threat of extermination by insect pests.

(b) Trees planted by man, in avenues and plantations, etc. sometimes of exotic species which found difficulty in establishing themselves.

It has been found that our own native trees suit all of our various conditions.

It is understandable that our forefathers, most of whom came from European countries, brought with them the type of tree and the pattern of planting which they had been familiar with at home. As a result, some of the earlier plantings are of regular avenues of oaks, elms, poplars and pines - such as the "Avenue of Honour" at Bacchus Marsh, and Hitchcock Avenue, at Barwon Heads.

These are excellent up to a point, but the increase in motor traffic has lead to thoughts of a change in this type of planting. Motorists who are unfortunate enough to run off the road, run a high risk of being fatally injured. Also, at high speeds the regular passing of trees tends to become monotonous and tiring to car drivers. Therefore, the policy now is to plant



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shrubs, or trees with slender trunks, and place them at random pattern further back from the pavement.

Many Overseas tourists have commented that under the old system of planting they see the same type of roadside here as they saw at home, and requested that Australian native varieties should be especially selected for planting instead of exotic varieties.

This thought has been supported by many Australians too, and now about 85% of the trees planted by the Country Roads Board of Victoria are Natives.

Another reason for this is that, if properly planted, the Australian varieties need no further watering after planting, and this results in a considerable saving in tedious work and in money.

It has been said that the Country Roads Board is the second largest planting organisation in Victoria, being exceeded only by the Forests Commission. Last financial year, some 25,000 trees were planted by the Country Roads Board, of which 15,000 were in the Wimmera and Mallee.

This year, it is expected that some 35,000 trees will be planted, of which 12,000 will be in the Wimmera and 14,000 in Geelong division. The C.R.B. obtains about half of its requirements from the Natural Resources Conservation League's nursery at Springvale South, where some 500,000 young trees are raised each year.

Trees planted by the roadside frequently have the most difficult conditions under which to try and grow. Lack of other natural nearby timber leaves them exposed to all the winds and gales that blow. They have no natural undergrowth to provide mulch for the roots, or to harbour birds which would control insect pests.

In summer, the ground often becomes hard and dry, while in Winter the young trees may be standing in water for some time. The sludge raised by passing vehicles blows to the side and smothers the foliage like a fine spray, thereby choking the pores in the leaves through which the tree breathes.

If any attractive flowers or blossom are produced, some thought-less passer-by is likely to stop and break off complete branches from the young tree. "

About 1927 the Princes Highway between Geelong and Melbourne was planted with sugar gums and cypresses, etc., placed in 10 chain plantations which alternated from one side to the other. In 1937 the Midland Highway between Geelong and Ballarat was similarly planted using bushy sugar-gums very extensively.

The tendency now is to develop "Random-planting" schemes, rather than these formal types of planting, it being desired to simulate naturally occurring tree growth as best as can be done. Under this scheme, the young trees are planted here and there in small groups, and as single trees throughout the prepared plantation area.

The method of planting out the individual trees has been altered over the years, as experience has indicated improvements that could be made. At one time a hole about three feet in diameter and one foot deep was dug for each tree, and the original soil replaced after setting the young tree in the centre of the hole.

Any clods in the soil allowed air to get early access to the root system, causing decay, and in wet weather the hole virtually became a pond, resulting in the tree being drowned.

Tree losses under this system of planting were fairly numerous. An improvement was therefore introduced by importing specially selected loam for placing around the young tree.

Generally the trees grew and flourished until the roots met the floor and walls of original clayey loam, when the growth became checked and the trees sometimes died. In this form of planting it was customary to stamp the granular loam firmly about the new tree at the time of planting, so as to exclude air from the roots and this had favourable results.

The system now generally adopted is to first plan twelve months ahead, and plough the whole area of each plantation, and also order the desired number and species of tree from the nursery. After lying in fallow through the summer and winter, the area is worked over again with disc-harrows or rotary-hoe as soon as weather will permit - about August. This operation should reduce the soil to a fine tilth into which the young trees are planted out in August or September. The natural soil is pressed firmly around the roots of each tree to form a very slight saucer shaped depression.

Each tree is given at least one gallon of water at the time of planting, and no further watering is usually necessary. The plowing and harrowing of the total plantation area ensures the capture and retention within that area of all the rain that falls, and the tree roots are thereby encouraged to spread uniformly in all directions.

The cultivation also kills any weed growth which would tend to compete with the tree for the plant food. Subsequent rotary-hoeing, at appropriate months, is necessary between and around the trees, to check weed growth, and to keep the soil in a friable condition. Trees should be spaced so that this movement of the hoe is possible.

At one time it was customary to place a treeguard around each tree, but this is rarely done now. When cattle were driven along the roads on foot it was necessary, but the cattle are now usually moved about on motor trucks. The treeguards were costly items, and prevented any workmen from getting near the young tree to remove weeds.

Since the rabbit population has been reduced in recent years, it is found easier and cheaper to replace the very few trees which they destroy.

There is a large variety of native trees and shrubs now available for roadside planting. In making a selection a number of features such as rainfall, soil conditions, and situation must be considered, as well as the height and characteristics of the selected tree.

The tree planter must also see that his choice of trees has the following good qualities: non-suckering variety, long life, immune from insect pests or disease, non injurious to public health, non poisonous to stock, and climatically suited.

Good advice on these matters is usually obtainable from the nurseryman who raised the trees.

Where central medians are constructed to separate opposing avenues of traffic, they afford an opportunity for aesthetic improvement, and the safety of night-travel can be assisted at the same time "by checking opposing headlight glare.

Suitable shrubs are selected, as they need not grow to a height greater than four feet, and they will not seriously damage a car which may get out of control and run into them.

In general, it may be said that roadside treeplanting is a procedure which has been closely studied and improved from time to time as experience has dictated.

It is basically carried out to compensate in a small way for the wholesale clearance of the natural timber from our farmlands, and at the same time develop an aesthetic amenity for the enjoyment and assistance of the travelling public.

It would, therefore, be appreciated if the general public would develop an interest in what is being done on their behalf and as opportunity may occur, take any action they may be able to, so as to encourage the growth and development of these trees outside their properties.

*****

BREAMLEA MIDDENS

By Trevor Pescott

Along the sand-dunes from Barwon Heads to Torquay, most of the area is covered with broken shells of various shellfish. In some places, patches of ash are exposed, and these are probably the long forgotten camp-fires of Aborigines; the whole area is a fantastic Aborigine kitchen midden. These areas are always worth exploration, and many stone chips can be found by casual searching; great care may also reveal several artifacts - axeheads and the like - but these are now very rarely found.

Early Naturalists have scoured the sand-dunes, and much of the most valuable implements has been found and collected. Only recently disturbed areas may still reveal more.

In cuttings, various layers of shells in the loamy sand show how the feasts were enjoyed over centuries, and these buried layers now seem to be the most promising to Anthropologists.

***

YOU YANGS CAMPOUT

By I. Trevaskis

During the September holidays, Graeme Dumbrell, Garth Palmer and I camped for five days at the You Yangs. We set up camp in a pine plantation on the western side of Flinders Peak.

On the first day we walked round to the East Flat where we found a Red-wattle Birds' nest in a young gum tree; in the nest were two young. We also found a Brown Hawk's nest containing three eggs. The nest was constructed of sticks and lined with bark. The eggs were buff, covered with reddish-brown blotches.

The Brown Hawk is usually seen in pairs or singly and is found throughout Australia. Their diet consists of mice, beetles, caterpillars and small birds.

Another nest found was that of the Yellow-winged Honeyeater. The nest, which was constructed of strips of bark, grasses and twigs and lined with soft plant down, contained three pale buff eggs with reddish-brown spots.

That afternoon, Mr. Pescott visited us, bringing with him a jar of honey which was "plastered" on a wattle in an attempt to entice the Sugar Gliders of the area to come and feed on the honey.

Mr. Pescott was later going to attempt to photograph them.

That night we checked the tree on which the honey had been placed but it brought no results.

The next morning the "honey tree" was checked and all the honey was gone!

On our way to the Ranger's residence a flock of White-winged Choughs was sighted in a small batch of pine trees. On investigation we found their nest. Garth climbed up to the nest which was constructed of mud, reinforced with grass and lined with strips of bark; the nest contained two eggs which were pale creamy-white, spotted and blotched with blackish-brown and slate-grey markings.

In the afternoon we visited the "honey tree" which wasn't far from camp, and put the rest of the honey on. That night we were successful in spotting one Sugar Glider and others were heard moving away as we approached. The gliders weren't the only ones interested in the honey as a lone Brushtail was also sighted close by.

The Sugar Glider is one of our most attractive marsupials. They are not leaf-eaters like larger gliders, but eat insects, native fruits and blossoms. The glider makes its home in a hollow limb or stump, where it builds a nest of leaves.

Sometimes they adopt the deserted nests of Ring-tails in which to make their homes. They are usually sighted at night, gliding from tree to tree as they search for food. They can glide a remarkable distance in comparison to their size. This was shown by Victorian naturalist David Fleay who recorded a glide of one hundred and fifty feet!

The next morning - Wednesday - after obtaining water from the Ranger we decided to take a short-cut through the bush to our camp site. This decision proved worth while because we found two Bronze-wing Pigeon's nests, both with two eggs.

We had been very anxious to find their nests because we had seen many of the birds about.

The Bronze-wing Pigeon is usually observed on the ground and when disturbed it rises with a loud whirring noise, flies a short distance and alights. Its food consists of seeds of grasses, plants and native fruits and berries.

On our way back we checked the Chough's nest and found that it now contained four eggs. We later photographed them. Incidentally, while discussing the choughs, we came upon an interesting and puzzling thing - are the choughs, who breed in small colonies, paired up or does one male own a "harem"?

That afternoon while walking in the bush we saw three rare inhabitants of the You Yangs - Fuscous Honeyeaters. This honeyeater is found in small flocks inhabiting open forests and scrublands. They feed mainly on insects which they get from the blossoms and leaves of trees. The nest is made of strips of bark bound together by cobwebs and lined with hair.

After tea, Mr. Pescott paid us another visit. The main intention was to photograph the Sugar Glider; the attempt failed and not one glider was sighted.

On Thursday afternoon, the three of us went for a walk to the rotunda. On the way, we found about four or five nests of the Ringtail Possum, all of them being in cyprus trees on the side of the road leading to the rotunda.

In one cyprus tree we found a Ring-tail's nest and also a brush tail's. The Brushtail had one young which was out of the pouch.

This is the first time we had seen two different species of possum living together and obviously in perfect harmony.

At about 9.30 that night we checked the "honey tree" and were lucky in seeing another Sugar Glider.

On Friday, we spent the day around camp.

Incidentally, a pair of Yellow-winged Honeyeaters had made their nest in an African Boneseed about ten feet from our tent. The nest contained two eggs and the bird was just beginning to incubate the eggs when we left. We had thrown a few crumbs near the nest and one morning one of the birds tried them out, only to spit it out in disgust!

During our campout we compiled a list of birds we had observed, and the total was fifty-five.

List of Birds Observed at You Yangs from July 30th to September 6th

Kookaburra, White-winged Chough (nesting), Grey-backed Silvereye, Blue Wren, Red-wattle Bird (nesting), Purple-crowned Lorikeet, Musk Lorikeet, Red-backed Parrot, Grey Fantail, Fuscous Honeyeater, White-plumed Honeyeater, Yellow-winged Honeyeater (nesting), White-eared Honeyeater, Brown-headed Honeyeater, White-naped Honeyeater, Welcome Swallow, Eastern Rosella, Crimson Rosella, White Cockatoo, Pipit, Spur-winged Plover, Magpie-lark, Black-shouldered Kite (Lara), Golden Whistler, Raven (nesting), Magpie (nesting), Black-faced Cuckoo-shrike, Orange-winged Sitella, Yellow-tail Thornbill (nesting), Brown Thornbill, Buff-tailed Thornbill, Scarlet Robin, Yellow Robin, Flame Robin, Red-

Contd. on Page 30......

"A PLATYPUS CENSUS"

By L. W. Elms

I wonder if Club Members and other interested readers might be able to conduct a type of Platypus Census by recording through these columns the dates and places at which they have observed a platypus in our local streams.

In 1952, when the big floods were running, I noticed a platypus on two consecutive days swimming in the Barwon just on the downstream side of the Winchelsea Bridge. It looked anything but comfortable in the turbulence, and may have been washed some distance downstream from its burrow.

About 1956, I watched a platypus for some time just above Buckleys Falls on the Barwon at Geelong, while it was alternately feeding from the streambed and sunning itself on the surface.

These sightings have made me wonder how many platypuses there are at large in our streams.

What have other members got to comment on this matter?

***

DOUBLENESS IN GREENHOODS

By Geoff Carr

In September, at Beaconsfield I found a twin-flowering Blunt Greenhood. This in itself is quite rare.

I have in cultivation a Blunt Greenhood in which one tuber has produced two distinct plants, each with one flower.

Last year at Beaconsfield I saw two twin flowering Greenhoods - the Trim Greenhood (P.concinna) and the Maroonhood (P.pedunculata).

A friend, during September, found a twin flowering Nodding Greenhood (P.nutans).

***

AT RANDOM

KOOKABURRA'S APPETITE

By Duncan MacKenzie

Australia has many unique and fascinating creatures in her realms of Flora and Fauna. One of the most lovable and well known of these is the Laughing Kookaburra (Dacelo gigas). He belongs in the family of Kingfishers, and along with the Blue-winged Kookaburra is the largest of the group in the world (which, incidentally, numbers over 150 members).

As well as being large in size, the Kookaburra is large in appetite. To fill this insatiable appetite, he lists the following on his regular menu: Snakes, Lizards, Young Birds, Rats, Small Animals, Insects, Grubs, and Yabbies. To further his connoisseur's reputation, he is the only bird known to tackle the Giant Earthworms which grow from three to eleven feet and occur in Southern Gippsland. He has even been known to kill Bandicoots.

Some years ago, I spent several days camped at Wartook Reservoir in the Grampians. A party of fishermen warned us to beware of Kookaburras, as these birds made it a habit to swoop down and snatch the food from the hand as you were eating. To add insult to injury, one bird had managed to enter a closed tent and on to a table, where several large fish were tightly wrapped in paper. It took the bird only a few minutes to open the package and completely devour the contents.

But "Jacky" doesn't have it all his own way with his food collecting habits. In point of fact, he just isn't built for it. He hasn't the power in his claws that birds of prey do, and so must rely on his massive beak to do most of the work. Of course this sometimes places him in difficult situations. Being unable to hold a thrashing snake down with his claws, he sometimes, embarrassingly, becomes the victim. He then has to set to and extricate himself from the coils, before progressing with the job at hand.

Generally though, once he has grasped the snake behind the neck, he either flies to a height and drops the reptile, repeating this process until the snake is dead; or, he flies to a tree with the victim, and batters it against a branch until it is dead. These are both gruesome, yet practical methods. With his large beak, the Kookaburra can batter and crush prey, but cannot successfully tear. This is one of the reasons much of his food is swallowed whole.

However, with all his troubles, he still retains the nature of being able to "laugh it off".

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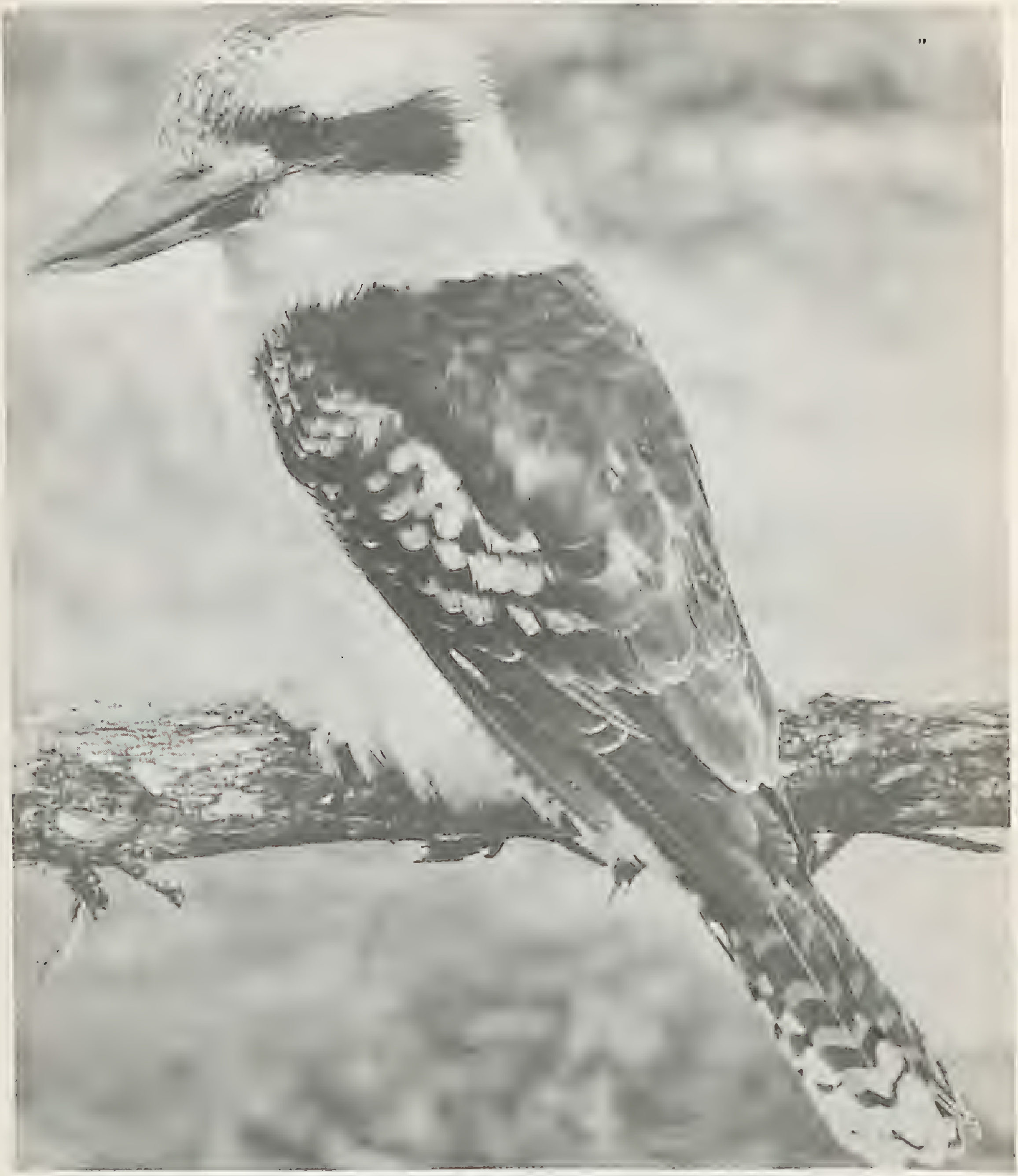

LAUGHING KOOKABURRA (DACELO gigas)

PHOTO By DUNCAN MACKENZIE

AT RANDOM

UNUSUAL NESTING SITE

By Joyce Hunt

There was no doubt that the swallows were building in the shed - they always do. But where? That was the question. In the barn there was a tell-tale damp patch on the ground where drops of water had fallen from the mud nest, but there were no visible signs in the shed.

The rafters support many things: fishing rods, wool packs, grain sacks and lengths of timber; also a large inverted cardboard carton, and under this we found Mrs. Swallow's house! What a hiding place! Yes, truly a cosy, doubly-sheltered and safe spot. Surely there are no fools in the bird world.

***

MATERNAL CARE - By Joyce Hunt

A white spot showing on a tiny green island in the flooded part of the paddock that should serve as a car track, proved to be, as we suspected, mother Plover. For nearly four weeks we kept her under observation, marvelling at her ability to keep her four eggs warm with water all around her, and almost constant wind and rain.

Then, one sunny day, there they were - four sprightly youngsters, just visible as they ran here and there through the long grass. While we were still fifteen yards away, Dad flew away, and Mum staggered some twenty feet from the chicks and put on the most realistic show of dying! With pitiful squawks she lowered her head, staggered, spread her wings, drooped them again, and altogether put on such an histrionic performance in order to draw attention away from her chicks that it was really quite laughable.

We went home delighted that she had successfully raised her little brood in defiance of such adverse conditions.

The little story did not end happily however. Three days later we found one of the parents dead - a pathetic bundle of feathers instead of a brave defiant parent - victim, we feel sure, of an irresponsible weekend shooter.

***

Contd. from Page 26

browed Finch, White-winged Triller, Hooded Robin, Brown Goshawk, Brown Hawk (nesting), Whistling Eagle, Wedge-tail Eagle, Grey Thrush, Restless Flycatcher, Willie Wagtail, Eastern Striated Pardalote, Bronze-wing Pigeon (nesting), Horsfield Bronze-cuckoo, Greenfinch, Boobook Owl, White-throated Tree-creeper, Little-pied Cormorant, House Sparrow, Indian Turtle-dove, Jacky Winter, Barking Owl (screams heard believed to be of this species)

GROUND NESTING BIRDS' PERIL

By Jack Wheeler

It is indeed unfortunate that the peak of bird nesting coincides with harvesting of pasture and cereal crops in many parts of Australia. Few people are aware that it is during the harvest of these crops that great numbers of ground nesting birds are disturbed, countless nests destroyed, and thousands of innocent young perish.

Prior to the coming of white man, it was Nature's arrangement that these birds nest in the Spring and early Summer when natural grasses and herbage were at their highest point of development and afforded proper cover and food supply for breeding purposes. Now that civilised man has arrived and cultivated land for a higher degree of pasture and cereal crop development, nature has not yet evolved any change in nesting habit to overcome these unfortunate losses from highly mechanised farm harvesting machinery.

The particular sufferers in the Geelong District are Swamp Harriers, Stubble Quail, Banded Landrails and Ground Larks.

The purpose of this article, however, only evolves around the life of the Swamp Harrier, one of the most common diurnal birds of prey to be found in this district.

Undoubtedly, the Swamp Harrier has its main concentration over and around Reedy Lake where a population of several birds exists.

Known to science as Circus approximans, the Swamp Harrier has variable plumage; adults are usually uniform brown but immature or sub-adult birds are greyish brown, due to the light buff edging of its feathers and which gives such birds a variegated appearance. These birds are almost equal in size to the common Whistling Eagle, but can easily be distinguished when in flight by the greater elevation of the wings and a distinctive white or creamy coloured rump patch in the lower back region.

At breeding time the usual clutch of local birds is four to five bluish-green eggs which in size would equal average size hen eggs.

Reedy Lake with its area of 1750 acres and its vast reed beds provides the Swamp Harrier with a natural habitat for feeding and breeding. Here it has probably hunted and bred for centuries, but there are occasions when the now controlled intake is insufficient to maintain the lake at a desired level, whereas in very dry periods with lack of water the reed banks no longer afford seclusion. It is undoubtedly for this reason the Swamp Harriers have shown a strong preference for ground nesting in flourishing cereal and pasture crops instead of amongst the reeds and rushes of the lake. Occasional pairs have beat the gun by nesting early and have their young on the wing by the time harvest commences. However, the majority do not do this, and when harvesting is under way, many are only at the egg stage whilst others have unflying young.

Of seven nests observed last season, all came to grief with one exception. Two nests of four eggs each were known to the farmer and a cut was made around the nest sites leaving some cover, but in both cases the birds deserted the eggs. Three nests of eggs were destroyed when run over by machinery and another case was that of young being killed unintentionally.

The exception was when a nest containing three very healthy young was unintentionally run over by a mower, the razor sharp blades of which must have grazed the nestlings, but luckily did not injure them. The operator could not believe how they escaped, with the blade only inches off ground level. It was thought that the machine may have tilted at the crucial moment by passing over a mound or a stone. The nest being too frail to move, the birds were collected in the farmer's hat and removed to a grassy site along a dividing fence where the parents later found them and continued to feed them.

The cover photo is of these same birds that had such a miraculous escape, and was taken three days after being removed to their make-shift nest. The birds were banded with C.S.I.R.O. leg bands.

As far as is known all were successfully reared and are now free birds of the air.

An almost similar case occurred on this same farm twelve months previous and the make-shift nest in that case was a hollowed out stook of hay.

Farmers cannot be blamed for this unfortunate destruction of nests and young, and most farmers watch out for nests and endeavour to save them. The farm in question where these young Swamp Harriers were saved is situated at Drysdale, and is owned by Hutchinson Bros., one of whom - Mr. Stan Hutchinson - we can now welcome to our ranks as a member of this Club.

Naturalists greatly appreciate such interest from the farming community, who in fact are much closer to nature than we city dwellers.

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CONTENTS

	Page
Editorial	1
An Introduction to the Flora of Batesford Sanctuary - By Geoff Carr	3
Photoflora	13
The Red-Back Spider - By Duncan MacKenzie	14
The Wyperfeld Well - By Rolf Baldwin	19
Firebirds - By Trevor Pescott	23
Some Birds of Wyperfeld National Park - By M. W. Dexter	25
Our Early Flora and Fauna - By L. W. Elms.	28
At Random	31
Junior Section	32

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COVER PHOTOGRAPH

A Pair of Nankeen Kestrels have used a deserted nest of White-winged Choughs to rear their brood in the Mallee.

Photo by Eric Bound.

NATIONAL MUSEUM
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GEELONG NATURALIST

EDITORIAL

Vol.1 No.4 January 1965

In the Editorial for Vol.1 No.3, I spoke of the urgent need for the preservation of natural habitat for our Australian Wildlife.

In this, my last Editorial, I will again follow this theme, and introduce you to the sterling work carried out by the Fisheries & Wildlife Department with their Wildlife Reserves System. This outline was contained in a letter to me by the Director of the F. & W., Mr. A. Dunbavin Butcher.

The system was inaugurated in 1959, and to date, twenty areas have been reserved containing approximately 100,000 acres. The Reserves contain various habitats, and many are for the preservation of specific species as well as for general species of wildlife.

While most of the areas were Crown land, in some Reserves portion of the area was privately owned, and such land had to be purchased.

Many of the lakes and swamps are for ducks (game birds), but also for the other species of waterfowl. Rocky Range (10,000 acres) is to rehabilitate the Rock Wallaby, now reduced to critical numbers. Mud Islands is a Reserve for White-faced Storm-petrels and waders, and Cape Woolamai (700 acres) for Mutton-birds. Lawrence Rocks and Julia Percy Islands are for Gannets and sea birds, while Seal Rocks is to control one of the breeding islands in Bass Strait of the seal. One of the latest reservations is that at Wathe, where 15,000 acres of better mallee scrub is preserved for the Mallee Fowl, while on October 23, Sale Common was handed over by the local Council to become the first Wildlife Refuge for game birds and waterfowl.

In the Reserves it is intended to manage the habitat specifically for the wildlife: in many cases this will mean leaving it unaltered, but in others, replanting and other works will be necessary. Residences have been built and Game Managers are already living at Serendip and Tower Hill to permit direct supervision of the areas.

Obviously much of this work will have to wait until the Department has money and staff available. However the prime step of actually having the areas brought under the control of the Department has been taken, and, what is more important, the principle of considering the claims of wildlife in schemes for land use has been established.

Owing to the fact that I will be spending three years on Biological Research with the Australian Antarctic Division, it is with regret that I have had to resign from my Committee positions with the Club, and would like to take this opportunity and thank all those members who have contributed articles, advice, and hard work to make the Geelong Naturalist the success it has become.

I wish the Club every success for the future, and feel sure that it will remain a leader in the Natural History Field for a long time to come.

DUNCAN MacKENZIE.

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FIELD NATURALIST CLUB OF VICTORIA AGENDA

The Field Naturalists Club of Victoria meets monthly at the National Herbarium, The Domain, South Yarra. The meetings of the F.N.C.V. are on the second Monday night of each month.

The next meeting is to be held on Monday, 8th February, when the speaker will be Mr. E. S. Hanks, whose subject will be "Birds and Trees". On Monday, March 8th, the speaker will be Mr. A. Mitchell, and his subject "Conservation and Vegetation".

AN INTRODUCTION TO THE FLORA OF BATESFORD SANCTUARY

By Geoff Carr

Just south of the town of Batesford lies Batesford Sanctuary, on the north side of a hill, at its foot runs the Moorabool River. It is not a large area, but it is a wealthy one.

However, before we look at the Sanctuary from a botanical point of view, we must first understand the nature of the area geologically, what surface features it has, the lie of the land and the type of soil found there. This is important because all these factors have a direct and profound influence on the vegetation of the area, as they do on the vegetation of any area.

As were the You Yangs, the Dog Rocks - Batesford area was formed by the weathering away of a large plutonic intrusion which entered the upper layers of the earth's crust. Now we see a hill interspersed and scattered with huge granite rocks and boulders and as would be expected the soil over the main of the sanctuary is light, sandy, and well drained especially since the area is sloping in most parts, being considerably steep in the eastern part.

The course of the Moorabool River is not granite rock, but, like the surrounding country is basaltic, and the river flowing by the eastern section is characterised by rapids and boulder strewn banks. The rapids enclose broad, still sections of river.

We see then that the soil over the majority of the sanctuary is sandy, well drained and of granitic nature while the soil adjacent to and adjoining the river is dark rich basalt soil.

Batesford Sanctuary, unspoiled by people and intact is the closest "bit of bush" to Geelong and it therefore provides an interesting and happy hunting ground for the naturalist who has access to the property. (It is private property). For myself it provides a pleasant and interesting Saturday afternoon walk. Natural History is not the only attraction there - the view from the top of the sanctuary is splendid. The Sanctuary bears a strong affinity to the You Yangs both flora and fauna wise as well as in landscape.

Let me now introduce you to some plants of the area.

The Sanctuary is divided into distinctive areas of vegetation in which a particular plant dominates. Covering about one third of the sanctuary and in the eastern part is the Burgan or Kunzea (Kunzea peduncularis) scrub. This graceful shrub (up to ten or twelve feet in the gullies) forms dense almost impenetrable thickets over most of the area. For the greater part of the year the scrub has a rather dull grey-green appearance but in summer the scene is transformed as the shrubs bear masses of white tea-tree like flowers on the ends of the branches. The flowers are a great attraction for the nectar seeking insects.

In the north west corner of the Sanctuary is a large wood consisting almost entirely of the Golden Wattle (Acacia pycnantha). The riot of gold in the springtime is a sight to behold as are the Hedge Wattles (A. armata). These form a large and scattered patch to the south of the Golden Wattle wood, and in their thorny embrace Red browed Finches find safety to nest. Although this acacia is very attractive it is the only Victorian species not protected by law.

Along the river the Blackwood (Acacia melanoxylon) brightens the scene in spring with its creamy-yellow bunches of flowers, contrasting strongly with the shiny dark foliage and bark. Some fine specimens of the feathery leaved Black Wattle (Acacia mollissima) can be seen, especially in the central part of the sanctuary east of the Belcher residence. The trees bear clusters of cream-yellow flowers at the end of the branches in spring. The flowers are strongly scented. The tree exudes large quantities of sticky amber colored gum, especially in summer. Several poor specimens of Lightwood (Acacia implexa) exist on the rocky parts of the eastern section. I have never observed these specimens flowering.

Over much of the western part of the Sanctuary can be found the delightful shrub the Snowy Mint Bush (Prostanthera nivea). It often forms inhospitable shoulder height thickets. In Spring, an abundance of white blooms are produced and these earn the plant its name for the slopes appear as if lightly covered with snow.

Of the Eucalypts there are four species represented. Along the river we see many fine specimens of the River Red Gum (Eucalyptus camaldulensis) which flower in summer. The Red Gum is one of our very beautiful trees and the characteristic long twisted limbs possess many hollows favoured by the Red Backed Parrots as nesting hollows. Manna Gums (E. viminalis) may be seen along the river as well as the main part of the Sanctuary. The Yellow Gum (E. leucoxylon) is plentiful over the Sanctuary and on the grazing land beyond the Apple Box (E. bridgesiana) can be seen at" its best.

The Giant Hop Bush (Dodonea viscosa) dominates the area south of the Belcher residence. Small inconspicuous flowers appear in winter to be followed by three-winged papery fruits. The bush growing to about twenty feet is often reddish in color. Large specimens grow by the river.

Throughout the entire sanctuary and in the area around grows Drooping Sheoak (Casuarina stricta). Contrary to the opinion of some people I think this tree is rather beautiful. Its male and female flowers (wind pollinated) can be seen in winter and spring.

There are some scattered but very fine specimens of the Coast Banksia (Banksia integrifolia) in the Sanctuary. The large yellow upright bush flowers appear in winter and are a favourite of the honeyeaters. Three large specimens side by side in the Kunzea scrub section have shed much seed and considerable regeneration of seedlings has occurred giving promise in the years to come of a large stand of trees. In the far east of the Sanctuary several isolated and excellent specimens of the Beaked Hakea (Hakea rostrata) can be found. These I should say are the remnants of a much larger colony to be found in the area before the land was cleared (that is the land adjoining the Sanctuary).

Commonly seen on the Sanctuary is the Wild Cherry (Exocarpus cupressiformis). This handsome light green cypress like tree is semi parasitic on the roots of Eucalypts. The fruits are borne on the end of their swollen fleshy stalks which turn red when ripe - hence the name "Cherry". These "cherries" are quite edible when ripe and are sweet but leave a dry taste in the mouth.

Speaking of parasitic plants, two Mistletoes grow on trees around the Sanctuary - the Common Mistletoe (Phygilanthus eucalyptifolus) and the Harlequin Mistletoes (Lysiana exocarpi). The Common

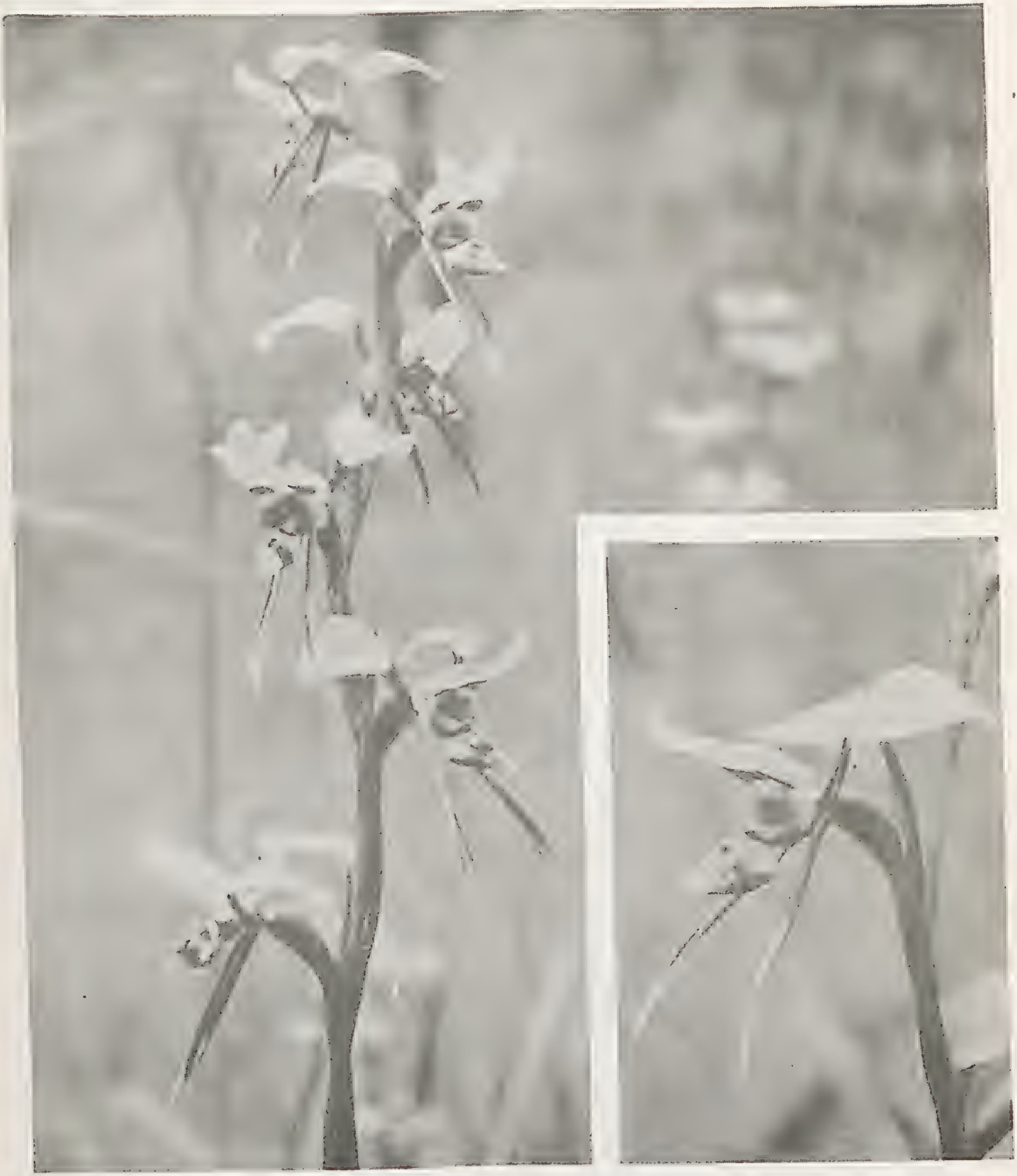
Mistletoe grows on Eucalypts while the Harlequin Mistletoe grows on the Drooping Sheoak. It is apparently rare in the area as I know of only two specimens. It is a very beautiful plant bearing slender tubular red and yellow-green flowers in summer. These are followed by berries. The Austral Dodder (Cuscuta australis) can be seen twining and strangling small trees on the rocky banks adjoining the river. Inconspicuous clusters of white flowers are borne in spring followed by berries - round, green and containing a hard seed surrounded by an extremely sticky, viscous, transparent substance.

On the open country in the western and southern parts of the Sanctuary grow several species of perennial lilies. The common component of these grassy and open places is the Nodding Blue Lily (Stypandra glauca) forming extensive patches. The erect thin branched stems springing from green-blue leaves bear clear brilliant blue flowers with yellow stamens. These stems grow about eighteen inches high.

The Common Fringe Lily (Thysanotus tuberosis) can be seen in abundance. It adds color and charm to this part of the area with its light purple flowers which usually open one at a time. The petals are broad and fringed, the sepals between them are not as conspicuous. The Twining Fringe Lily (Thysanotus patersonii) is less frequently met with and again purple flowers are borne on twining stems with very small sparse leaves.

The first lily flowers to open (they open in spring or more usually winter) are the Early Nancies (Anguillaria dioica). The erect stem bears a spike of white and purple-brown circular flowers either male, female or bisexular. The delightful Yellow Stars (Hypoxis glabella) grow in profusion in the wetter parts of the open spaces. They are indeed aptly named.

In spring the Blue Stars (Chamaescilla corymbosa) dot the grass with bits of the sky. Only one flower opens at a time. The stem bears a cluster of flowers. The white and brown flowers of Milkmaids (Burchardia umbellata) are seen as commonly as the above species. The flowers are sweetly fragrant. The Bulbine Lily (Bulbine bulbosa) may be seen occasionally between rocks and in crevices. This bears a spike of yellow flowers in spring and the Yellow Autumn Lily (Tricoryne elatior) also bears yellow flowers. This may be seen also in protected crevices.



TIGER ORCHIDS (DIURIS SULPHUREA)

PHOTOS BY TREVOR PESCOTT

The family Orchidaceae does not go unrepresented at Batesford Sanctuary The spring flowering Fringed Spider Orchid (Caladenia dilitata) is perhaps the loveliest species but the buds are frequently ripped by rabbits. The Gnat Orchid (Acianthus exsertus) is found under Kunzea scrub in the protection of rocks. Large colonies flourish in these damp places. The quaint flowers borne on a stem about two inches high may be seen in winter and spring.

Several Greenhoods (Pterostylis revoluta and P. nana) grow in small colonies but these too frequently are eaten. The former species is most beautiful and as suggested by its name it can be seen flowering in autumn. The Dwarf Greenhood can be seen flowering in spring. It is not common at the Sanctuary though. Very scattered and occasional specimens of the Slender Sun Orchid (Thelymitra pauciflora) can also be observed flowering in spring. Diminutive and inconspicuous as it is, the Common Onion Orchid (Microtis unifolia) is perhaps the most common orchid occurring on the Sanctuary. The spike of tiny green flowers can be observed in late spring.

To my knowledge two of the Diuris family grow in the area - the Snake Orchid or Golden Moths (Diuris pedunculata) found growing in open grassy situations, and the Tiger Orchid (D. sulphurea). The Snake Orchid produces a stem in spring usually with one or two clear golden flowers on it. It is very conspicuous in the grass. The Tiger Orchid is yellow but with two brown spots on the flower. I have noted only one small colony growing beneath a Red Gum in thick rock fern.

Several other species of orchids have been recorded as growing at Batesford Sanctuary, Dog Rocks area, but these I have not seen there. The Dwarf Spider Orchid (Caladenia pumila) was reported growing at the base of the Dog Rocks many years ago, but whether it still exists there perhaps only the rabbits and stock can tell (if they could talk - and I wish they would sometimes).

This rare and wonderful species has been recorded only from Bannockburn and Batesford, but it has not been seen with certainty for many years. The Brown Beard Orchid (Calochilus robertsonii) has been seen at Batesford Sanctuary several years ago by a friend along with the Small Spider Orchid (Caladenia clavigera). These may now be extinct.

The Rock Fern (Cheilanthes tenuifolia) is one of the most abundant plants, growing over most of the Sanctuary. It grows in colonies among rocks usually and is perennial. The Common Bracken is found at the Sanctuary (but where is it not found). It grows on the lower slopes and flats adjacent to the river, always on basalt soil. The remaining species of fern growing in the area is the Necklace Fern (Asplenium flabellifolium). Though it does not grow in the Sanctuary, it grows very close to the Sanctuary on a granite rock. Only one specimen exists here.

The Dwarf Rice Flower (Pimlea humilis) is a conspicuous plant of the open grassy slopes. At the most six inches high the heads of compact white tubular flowers appear in spring, forming small patches. The Slender Stackhousia (Stackhousia viminea) can be found growing in the south west part of the Sanctuary under the cover of Hedge Wattle. Its cream flowers produced on a slender stem in spring are (like the Pimlea) tubular.

Covering the ground under the Eucalypts near the Belcher's residence is the Pigface or Noon Flower (Mesembryanthemum aequilaterale). This succulent has thick triangular leaves and brilliant (but small compared with its exotic cousins) pink flowers produced in spring and summer. Nonetheless, it is a rather lovely plant.

Gems of the Sanctuary are the Running Postman (Kennedya prostrata) and the Blue Pincushion (Brunonia australis), also the Trailing Goodenia (Goodenia lanata) and its cousin the Spur Velleia (Velleia paradoxa). The Postman is a prostrate creeper with leaves like clover and at the leaf axils it bears clusters (up to five) of pea shaped flowers colored a brilliant pillar box with a yellow blotch. Though it is common over most of Victoria it never fails to attract attention. It is one of my favourites.

The Blue Pincushion ranks as one of the most beautiful plants to be seen in the bush. The plant has a rosette of silky grey-green leaves and the cluster of tiny brilliant blue flowers is produced at the end of an erect stem. The name "Pincushion" is derived from the long yellow stamens which stick upright from the individual flowers. It is difficult to cultivate (I know of no-one who has succeeded) but it would be certainly well worthy of a place in any garden.

The Trailing Goodenia is a prostrate plant with shining, dark green leaves and large yellow flowers produced singularly on stems. Its cousin the Spur Velleia also has yellow flowers somewhat like those of Goodenia. Both plants are perennials.

The Kangaroo Apple (Solanum aviculare) is a plant not unfrequently met with and is usually seen beneath Eucalypts. The large purple flowers are followed by large oval yellow-orange berries and the large dark divided leaves make it a handsome plant.

Hairy Pennywort (Hydrocotyle hirta), Cut Leaf Cranesbill (Geranium pilosum) and Common Buttercup (Ranunculus lappaceus) are several plants to be found; they all flower in spring. Two "blues", and lovely "blues" at that, are the striking Blue Devil (Enyngium rostratum) and the Austral Bluebell (Wahlenbergia gracilis). The Blue Devil is not at all plentiful. Two "pinks" both lovely plants are the Austral Centuary (Centaurium pulchellum) and Convolvulus erubuscens. The Convolvulus, a trailing plant opens its large pink flowers (all facing the same direction) only when the sun shines.

Perhaps the most interesting and quaint plants to be seen on the Sanctuary are the Sundews (Drosera spp.). Doubtless they are the most numerous and common plants in the area, growing by the thousand in all parts. They are insect eating plants and the leaves are covered with hairs terminated by a sticky globule of digestive fluid. The insects which visit the plants (they are attracted probably by a scent) are caught and held by the sticky fluid. They usually don't escape but are slowly digested providing the plants with nutrients which they otherwise could not obtain from the poor soil. They are spring flowering perennials which grow from a small round tuber.

The most uncommon species is the Climbing Sundew (D. planchonii). The flowers are large and white. D. peltata and D. glandaligera are the most abundant species. The former is a plant about six inches high with leaves arranged up the stem and with small pink flowers in a small cluster at the top. The latter species has a basal rosette of leaves from which springs a stalk bearing a number of orange flowers. The early flowering Scented Sundew (D. wittakeri) is last but not least. The rosette of leaves is often scarlet. The large white flowers are sweetly fragrant.

We see over most of the Sanctuary the Erect Guinea Flower

(Hibbertia stricta) with bright yellow flowers. It makes a delightful and conspicuous addition to the area.

No piece of the Australian bush would be complete without one or another member of the Epacridaceae family, the Heaths. At the Sanctuary grows the Cranberry Heath (Astrolomahumifusum). A prickly mat-like ground-hugging plant is this. It bears small red heath-like flowers which are followed by large round berries which are quite edible. The flowers and berries are not very conspicuous as they are usually under the foliage.

A showy perennial the Common Everlasting (Helichrysum apiculatum) is common in the west of the Sanctuary and along the road leading to the Dog Rocks. It has silky grey leaves and heads of bright orange-yellow flowers providing color over a long period. It flowers in spring.

The soft and feathery Pussytails and Lambstails (Trichinium spathulatum and Trichinium exaltum respectively) are delightful plants. The first plant is prostrate the latter a plant of up to two feet. They can be found in the west on the dry soil often around ant nests.

The introduced plants are fairly numerous and apart from the miscellaneous selection of weeds, noxious and otherwise we see the Sweet Briar (Rosa rubiniosa) in the west and down towards the river. It flowers in December, the large single pink flowers being very pretty.

African Boxthorn (Lycium ferocissimum) can be seen near the river too, on the basalt soil. Both these plants provide food for birds and the numerous Cunningham Skinks. The Briars produce red berries as does the Boxthorn. By far the most conspicuous introduced plant is the African Bone Seed a bush up to five feet. We see the same effect here as at the You Yangs. The bush is extremely prolific and reproduces in thousands. Unless it is controlled it will take control of the Sanctuary as it has in many parts of the You Yangs. These are the type of things naturalists despair about. Even so, it is a rather handsome plant producing masses of bright yellow daisy flowers in spring.

The lovely Quaking Grass (Brizia maxima) is common. We turn lastly to perhaps the most beautiful (scenically) and most interesting part of the Sanctuary - it is here that many beautiful plants exist in the rich granite soil between the rocks. Let us look in the river first, for many interesting plants are found in the water as well as out of it. The river between the rapids is broad and calm, ideal for water plants. Broad Leaf Pond Weed (Potamogeton spp.) is common as is the Water Ribbons (Triglochin procera). The leaves of both these plants float on the surface of the water. Eel Grass (Vallisneria spiralis) is also commonly seen.

Leaving the water, we see by the river in the mud often between rocks the Creeping Monkey Flower (Mimulus repens). The lovely open pink and yellow flowers add subtle color to the banks. The Hop Goodenia (Goodenia ovata) is not uncommon by the river. About four feet high the yellow flowers borne at the axils of the plant add color to and contrast with the dark green leaves. The plants are slender with about three or four erect stems. The bushy, Sticky Boobialla (Myoporum viscosum) is a delightful plant of the river side. The smooth finely serrated leaves are sticky at the ends of the branches and the branchlets bear many hairy white flowers freckled at the throat and on the lower three petals with tiny purple dots. The shrub adds a freshness to the place.

The River Mint (Mentha australis) is a lover of the rock crevices. It has aromatic leaves. The Wild Raspberry (Rubus paruifolius) spills over rocks and scrambles on the banks. The red fruits are favourite food for birds.

The Clematis is very plentiful in the north east corner and along the river. It climbs over any available shrub as support. It is a very showy climber producing masses of cream flowers in spring. The flowers are followed by seeds with a long feathery tail and in masses the effect is rather delightful. Always with its roots in the water is the Woolly Tea-tree. It is a handsome shrub with numerous flowers produced in spring time. The flowers are white, clear white, and contrast strongly with the grey-green soft foliage.

The Swamp Bottlebrush (Callistemon paludosus) too is found with its feet in water. It is often a small tree and bears small cream bush flowers in summer. Common Reeds (Phragmites communis) often grow around these trees or shrubs.

Lastly, we see one of the most beautiful plants to be found in the whole area, indeed anywhere in our bush. It is the Native Fuschia or Correa (Correa reflexa) and as well as this its variant Correa reflexa var. glabra grows there, side by side. Correa reflexa has pink or red flowers, tubular, with green tips. Correa reflexa var. glabra has green flowers and is smooth, whereas Correa reflexa is hairy on the stems and the undersides of the leaves. Its variant also has smelly leaves.

All intermediate plants between Correa reflexa and its variant can be seen. These flowers are very pale pink suffused with green and represent the link between the two plants. The shrubs are about three or four feet high and flower nearly all year round.

You have had a glimpse of the plants of Batesford Sanctuary. With more areas like this set aside the plants of an area would not be lost but would be there for the future generations to see.

Batesford Sanctuary is the only place where I can see the plants which were once, I suppose, plentiful in our area. Had more areas been set aside, I may have been able to go to places today to see plants like the Dwarf Spider Orchid, the like of which I may never see. It is not too late.

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PHOTOFLORA

For the first time, we are to have a Geelong Showing of Photoflora. In previous years, Geelong photographers have been well represented and it is hoped that this year will be no exception.

The Showing in Geelong will be on March 24th, and will take place in the Y.W.C.A. Hall in Aberdeen Street.

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THE RED-BACK SPIDER
(Latrodectus Mactans)
By Duncan MacKenzie

Beautiful - but deadly; producer of life and deliverer of death. This aptly describes one of our most infamous spiders, the Red-Back or Jockey Spider. From the dry inland to the heart of our throbbing cities, it lives and kills.

Feared wherever it is found, the Red-Back Spider occurs in Arabia, India, the Malay Archipeligo and down through the Pacific. In New Zealand they call him "Katipo", the Night Stinger, and is held in fear by the Maori. In the United States of America the notorious Black Widow Spider occurs, and is considered to be the same species as our Red-Back. The Black Widow has often been branded as "Public Enemy No. 1".

Though deadly through her bite, she is, in appearance, one of our most beautiful spiders.

The male, as in most spiders is much smaller than the female, and is not very often seen. Being so small, the red stripe on the back is not always apparent, and at times is actually non-existent. His size renders him harmless to humans, but the amount of venom he is able to inject into his hapless victims, is enough to provide him with his daily meals.

The female is another story. Here we have a spider beautiful enough to be admired, and yet dangerous enough to beware of.

Her body is about the size of a pea, and may measure up to ½" in length, the abdomen being about ¼" across. This pea shaped body is covered in black to dark brown hairs, comparable to the finest black velvet. The black sheen is broken by a bright, vivid red stripe down the back, while on the underside a smaller red or white stripe is present. This striking body is then delicately balanced on eight long slender legs. With pregnant, immature and newly moulted females, the body colour, instead of being black, may be a drab greyish green colour.

The web of the female is quite unmistakable. There is no symmetry in the design, and it can be located in any one of a thousand situations; under rubbish in the bush, in bottles, tins, toilets, under the roofs and floors of houses, anywhere at all. And it isn't a structure that a respectable spider

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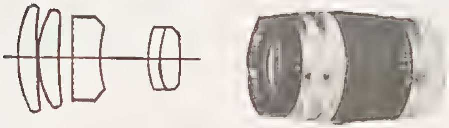

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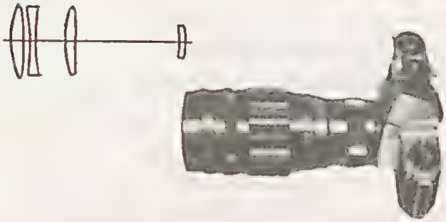

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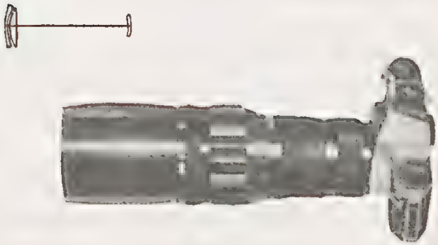

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could be proud of. But on the other hand it's functional and that's really all that matters. It is an extremely irregular web, held by guy lines which often extend far beyond the central section of the snare. From these guy lines the web extends in all directions, giving the observer the impression of a spider off on a drunken spree. The snare contains viscid threads, and it is these threads which trap and ensnare her victims.

The food of the Red-Back Spider consists mainly of slaters, insects, centipedes, and an occasional small lizard. The predominant food is slaters, and it is an interesting fact that no other spider will eat these crustaceas, and yet the Red-Back relishes them. An inspection of any Red-Back's web will show dozens of the hard outer cases of these slaters, littered in and about the snare.

Another point by which to identify the web of the Red-Back is the egg sacs, which can be seen suspended throughout the web. The part the small male plays in the fertilization of the eggs within these sacs, is as told in the previous article on spiders. During courtship he is in constant danger of being eaten by the female. Only the most wary, fastest males survive in the battle to propogate the species.

Once the female is pregnant she becomes quiet and withdrawn. Her body begins to swell from the eggs developing within, and her beautiful coloring will sometimes begin to pale. Come March and she feverishly begins to spin the egg sacs, and lays upwards of one hundred eggs in each. Over a period of two weeks she produces from six to seven of these sacs, each being filled with small white, and sometimes yellowish eggs. The sac itself is globular in shape and in size is slightly larger than her body. These sacs are waterproof and are suspended at intervals throughout the web.

Seven weeks later, the spiderlings emerge from their warm nursery and the battle for life begins. The Red-Back practises cannibalism, sothe spiderlings' best chance for survival is to escape from their birth place and begin their own cycle of existence.

However, not all the sacs will necessarily produce live spiderlings. Nature in all her wisdom, has decreed that there shall be a balance within her kingdoms, and she has devised various methods by which to control this balance. With the Red-Back Spider, it is two wasps - Braconid and Chalcid. The female wasp once she has found her "egg sac" victims, traverses the outer cover, feeling with her antenae, for just the right spot. Once this is found, she methodically proceeds to pierce the tough outer cover with her ovipositor, and deposits her eggs within.

When the wasps larvae hatch, they live on the spiderling eggs. Once this supply of free "food" is exhausted, they proceed to pupate, later to emerge from the sacs as wasps. Nature's balancing cycle has now completed another stage.

To preserve her balance, nature must take, but on the other hand she also gives. And to each and every creature she gives in the form of personal protection. Be it the power of flight, camouflage, speed, an armour-like covering or a deadly sting, she endows something to each.

With our Red-Back, she has given a deadly bite. In humans the mark left by the fangs appears as a red spot. After about an hour the patient develops acute and painful nerve pains. Stiffness then occurs around the affected area followed by extreme perspiration. All these symptoms are accompanied by nausea and vomiting. Death will possibly follow depending on the physical fitness and age of the patient.

Statistics show that since 1957 about 180 cases of spider bites per year have been reported in Australia.

The spider herself provides the answer to this problem, in the bright red stripe she carries on her back - Beware, I am deadly.

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BONE SEED

The Bone seed weed is again prominent, this time at the Dog Rocks. A seedling pulling campaign was organised by Mr. R. Baldwin who engaged the energies of one hundred students from the Geelong Grammar School. It is to be hoped that the plant will not be allowed to form "jungles" as it has at the You Yangs, for here all other plant life is choked out. The December issue of the "Victorian Naturalist" contains an article by Mr. J. Wheeler on the introduction of the plant. The journal is available from the Club's Library.

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THE WYPERFELD WELL

By Rolf Baldwin

The connection between our Society and the Wyperfeld National Park would seem to be fairly tenuous. However, many members were interested in what Dr. Len Smith had to say of the place during a recent lecture and many, too, took note of his plan to sink a well there to bring more water to a virtually waterless region.

Now, what was then only a vague plan has become a partial reality. A party of masters and boys from Geelong Grammar School has made a beginning on the work and members who were interested before might now like to know what progress has been made. The fact that Messrs. Bechervaise and Baldwin and several of the boys concerned are members of the Geelong Field Naturalists provides an added link between the Society and the project.

The National Park itself is a rectangular stretch of country 25 miles long and 10 broad, with its southern edge a few miles north of Lake Albacutya. Rainbow and Hopetoun are each about 25 miles from the park gate, the first to the south, the other to the south-east. The western and eastern sections of the tract are taken up with Mallee sandhill country, the centre third is largely occupied by the flats, dry lake beds and rambling, empty creeks and billabongs which are the forward scouts of the Wimmera in its hopeless battle with the dry country to the north.

From the very early days of settlement until the gazettal of the Park, this section was the stamping ground of sheep, originally belonging to out-stations of the great Mount Korong run, later to various smaller concerns. None of it was ever rolled and put to wheat, which was the common fate of so much of the Mallee scrub. The western portions though richly picturesque with a wealth of flora, would be classed by the farmers as desert.

Through all this country water is the vital factor. In a good year the desert clothes itself in colourful attire of gold, silver, green, blue and purple, a myriad birds make merry by lake and billabong, and kangaroo, emu and lowan roam free. In the bad years, the desert is harsh indeed and austere. Those creatures that can, escape, while those that remain have to struggle for their very lives, making full use against the drought of the various protective devices that they have developed over the ages. Of old, the good years may have been frequent enough, but the times are changing, for nowadays the occasional bounty of heavy rains which would flood the Wimmera system is impounded by man for his own needs and Wyperfeld goes thirsty. Old hands can remember the big flood of 1918 which filled all the creeks and allowed men to swim in Brimin and Wonga. Doubtless such runs were common enough in the early days, but the like has never been seen since. Though there has been water in the lakes the creeks have never flowed.

Even under the comparatively waterless conditions of our day the innumerable wild creatures which inhabit the park find enough moisture to satisfy their requirements; their numbers testify as much. Nor do they have to share what there is with sheep and horses as in the old days. So far all is well, but in another way the gazettal of the park has brought a new factor. Where once only a few stockmen wandered over this country, now there are hundreds of tourists. A pleasant camping site has been arranged for them round Wonga Hut beside the dry bed of Lake Brimin, including those ablution and sanitation facilities which, further south, are a matter of course, but which here are outright luxuries because of the lack of natural water. What is necessary has to be carted from a distance - a tiresome and costly task.

Various attempts have been made to improve matters. Boring found good water at a depth of about 40 feet, a casing was put down and a wind pump was installed. Disappointment followed, however, for fine, shifting sand clogged the pump so that only a trickle of water could be obtained. Still, it was there, and recent operations have been an attempt to dig after it. In the old days this would have meant a timbered shaft through the shifting sand. The moderns, however, have gone one better.

The centre of their idea is a thick concrete pipe, or rather ring, four feet in diameter, but only one in length. One of these is placed flat on the ground and the central soil is excavated until the ring sinks. Then another is placed on top and more earth is excavated until the two pipes sink, one on top of the other, when a third is added and then a fourth, and so on until the required depth is reached. At least, that is what happens in theory. In practice, sand can take charge, and in this case it did. When the first shaft had gone down to 16 feet, the rings in its middle depths began suddenly to twist and slide beyond any power of prevention, still less of cure, until, in the space of about half an hour, the shaft became unworkable and had to be abandoned.

This looked like failure, but lessons were pondered and a new start was made. Rings were fixed to one another by bolts, steel plates and pieces of timber, so that they were held firmly and vertically one above the other. For a while all went well, till a hard layer was struck. Somehow, in a way not yet understood, this layer grasped the pipes on the way through. Gradually, pile-driving devices were evolved, slow and back-breaking, it is true, but still capable of sending the pipes down.

Progress fell to a matter of a few exhausting inches in an hour, but work continued to the end. When the tidying up was done the hole was 17 feet deep, truly vertical, with the rings firm and accurately aligned, ready for work to begin again as soon as a team can be obtained. Moreover, as far as amateurs can tell, techniques of digging have been worked out which will lead to rapid sinking once the problem of the hard layer is solved.

From the little that has been said above, it can be imagined that the well was a demanding task-master. What saved the situation for its slaves was that they were numerous enough to work shifts and so were saved from the ultimate frustration of being in the midst of a country strange to most of them without being able to look around.

The immediate surroundings fell into three categories. There was the flat, dry grassy bed of Lake Brimin with its attendant Red Gums in ranks along the edges. Next came a large flat, maybe a mile long, grassy and dotted with fine black box trees. To the west stood a long guardian sandhill, a rich reddish yellow, seriously eroded, but still tufted with a couple of gnarled Murray Pines. Close handy was the high sandhill called Flagstaff, from which a superb view could be had of a vast expanse of rolling Mallee hills, some covered with mallee, others with tea tree or porcupine grass, others, very few, almost bare.

Here and there were the dark stands of Murray Pine on flats which, on a closer view, were fascinatingly park-like. In some places clumps and odd specimens of the smaller scrub pine diversified the ridges. Whenever they could, members of the party wandered in this wonderland until they became familiar with less common trees and shrubs as well. Banksias, Weeping Pittosporums and Quandongo were easy enough to recognise, but there was no time to identify the various species of Acacia which, a little later, cover that enchanted country with splashes of gold. Most wonderful of all were the fragrant acres of delicate pink and white Micromyrtis and the rich greens, yellows and bronzes of the tipsof the Mallee scrub.

All of this could be appreciated by the non-specialist and so, too, could the zoology of this varied tract of country. Little parties of kangaroos and emus wandered close to the camp every morning; further back they could be seen in groups of twenty and thirty. Only a few miles away was a part of the scrub where four or five of the mounds of the lowan were found in a very short time, though none of the birds was seen. Any night, tawny frogmouth and boobook could be heard around the camp. In the morning great wedge-tailed eagles would sail across; we knew where some of their nests were and remembered that this was the country of Raak.

Once a party of pelicans glided over, at immense height, and once it was a small group of black cormorants, winging confidently to the north. Again with the birds, time was the enemy. All could recognise the rich carolling of magpie and butcher bird in the dawn chorus, and most saw the superb colouring, rich yet delicate, of ringneck and smoker, galah and Major Mitchell cockatoo.

Yet, few had the time, or the luck, to see avian jewels such as the red-capped robin and the black-backed wren and none was able to wander and loiter and sort out such rich groups as the honeyeaters. For the same reason the whole study of entomology went by the board; there just was not the time.

Largely, also for the same reason, but also because of the absence of the principals, no progress was made on an interesting scheme to record the voices of the local frogs.

As we left, each had his own ideas about the balance sheet of the last nine days. The prime aim, of finding water, had not been achieved. On the other hand, it had been a gallant failure; much necessary exploratory work had been done, many technical lessons had been learnt and the well had been left in good trim for final sinking. At the personal level, all had achieved the ambition of learning something of the Mallee and of living near to the heart of it for a few days of its brief, beautiful spring, when the country is soft and mild and the sunshine gentle and the hordes of ants and flies are inactive.

At the same personal level most seemed to cherish the idea of returning to finish what they had begun, even under the rigours of summer, whilst all the naturalists are determined to go back there in other springs to savour the rich variety of that fascinating region free from the tyranny of "the Well".

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FIREBIRDS

By Trevor Pescott

Many of our seabirds are night flyers, returning to their nesting colonies under the cover of darkness after spending all day at sea. And, consequently, bright lights are an irresistible attraction, drawing the birds straight to them, dazzling them so they have no sense of danger. Not only incandescent light attracts them, but an even greater danger, if a rarer one, is the flame from an open fire.

Prions are no exception, and it is this apparent willingness of the birds to fly straight into a fire which caused the Falkland Islanders to call them "firebirds". The birds are well known to travellers in the southern oceans, and here they are often called "whalebirds".

There have been four species of Prion recorded from the Geelong District, and of these the most plentiful would be the Fairy; this is understandable when we realise that it is the only Prion to nest off the Victorian coastline. Rarely are the Prions seen alive around our beaches, but after storms at sea, hundreds are washed onto our coastal beaches. One can only speculate on the enormous numbers of these birds when each storm kills so many; in general, seabirds are found in greater individual numbers than land birds, even if they are fewer in species. Apparently, during the storms, the Prions can ride out the winds, but food is scarce and the birds soon become too weak to withstand the elements.

Prions have a particular association with Geelong, for it was at

Torquay that one of our six Australian Prions was first discovered. This bird is called the Thin-billed Prion, and its original scientific name was Heteroprion belcheri; later its genus was altered and it was placed with the other members of Pachyptila. The man who first handled the bird is Charles F. Belcher, who wrote the book "The Birds of the District of Geelong, Australia", and in whose honor the bird was named. To describe the finding of the bird, it may be best to quote from the book - "After a heavy tempest in June 1911, I found the remains of twenty birds .... on the beach at Torquay in 1911. Two of these were deemed to be entirely new to science and were named for the first time accordingly."

The Fairy is the only one which can be identified at any distance and even here it is difficult; the difference is the width of the black band on the tail, there being a broad band about 1½ inches wide with the Fairy, and all others are narrow. Accurate identification is by measuring the culmen length (chord from beak tip to base), beak width, and by the ratio of length to width. An additional aid is the structure of the beak, the size of the "nail" tip of the beak, whether the sides are straight or convex, and whether the larnellae is exposed (this is a comb-like sieve at the side of the beak - prions with exposed lamellae look like a dog snarling).

Otherwise, the Prions look alike. They are about ten inches in body length, soft grey with a brown grizzle on the shoulder, a white face, black tail tip, and blue grey beak and legs.

At Lady Julia Percy Island, we had the opportunity of seeing the birds alive, for here the Fairy Prion nests. During our trip in December 1963, we mistnetted and banded about two hundred adults.

Beachcombing can be extremely valuable to ornithologists, if a little unsavoury, for many rare and interesting birds can be found which we would otherwise never see.

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SOME BIRDS OF WYPERFELD NATIONAL PARK

By M. W. Dexter

Wyperfeld National Park is situated in the Victorian Mallee, twenty-three miles from the town of Rainbow. When visited last September holidays, the lake-beds were dry. However, there had been sufficient rain to promote the growth of various grasses, which provided seeds for the many birds inhabiting the Park.

These birds obtain water from either the dew or from small springs. Other larger birds drink at a windmill near the tourist area.

Red Gums grow around the main lake-beds and behind these are quite large pockets of Black Box. Several species of Mallee Eucalypts grow over the drier sandhills, these being interspersed with tea tree and many other small flowering shrubs. On top of the ridges Murray and Scrub Pines flourish.

Many species of birds are confined to these different tree belts, and to see the smaller birds, the watcher had to remain in each separate area for some time, to become accustomed to the birds' habits.

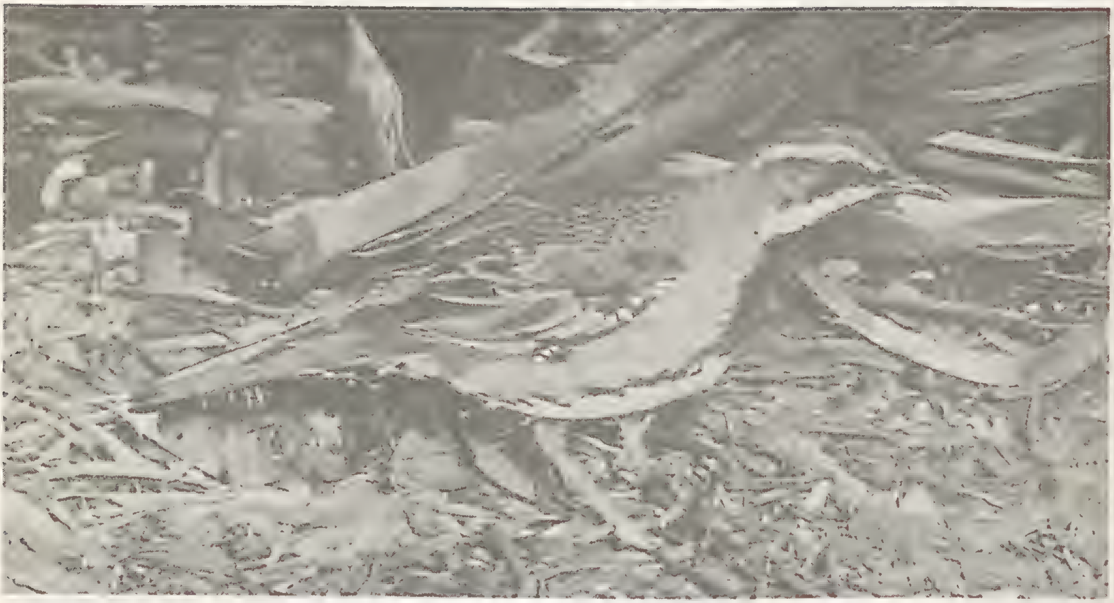
The most common birds around our camp were the Yellow-throated Miner, Mallee Ringneck Parrot, and a species of Magpie, which appeared to be a combination of the White and Black-backed. During the day the Yellow-throated Miners carried out a type of "gang warfare" on any other birds entering their territory. The carolling of the magpies was immediately noticed, as it began well before dawn and continued for several hours.

Early each morning the Galahs flew overhead to feed at dry lake-beds to the south. White Cockatoos also passed overhead, presumably moving to cleared land around Yaapeet, a wheat growing centre situated just outside the Park.

The Major Mitchell or Pink Cockatoo was not very common, only about half a dozen being noted near the camp.

The Black-winged Currawong, Grey Butcher Bird, Australian Raven, Pallid Cuckoo, Kookaburra, and Brown Tree-creeper were noted in the Red Gums, while the White-winged Chough, Restless Flycatcher, and Black-capped Sittella were confined to the Black Box belts.

Yellow-tailed Pardalote, Red-tipped Pardalote, Grey Shrike-thrush



MALE CHESTNUT QUAIL-THRUSH

YELLOW-TAILED PARDALOTE

PHOTOS BY TREVOR PESCOTT

Magpie Lark, Black-faced Cuckoo-Shrike, White-fronted Chat, Grey Fantail, Willie Wagtail, Australian Pipit, Australian Tree Martin, Welcome Swallow, Red Wattle Bird and Spur-winged Plover were seen in many areas of the Park.

Birds noted which seemed to be confined to the areas of Murray Pine were the Red-capped Robin and Crested Bronzewing Pigeon, while those confined to the Mallee Eucalypts, Tea Tree Scrub and Banksia, were the Grey-backed Silvereye, Yellow-winged Honeyeater, White-plumed Honeyeater, White-eared Honeyeater, Brown-headed Honeyeater, Brown Thornbill, Black-backed Blue Wren, Rufous Whistler, White-browed Babbler, Common Bronzewing Pigeon, and the Horsefield Bronze Cuckoo.

Other parrots observed were the Red-backed, Mulga, Regent and the Eastern Rosella. These, as well as the other cockatoos and parrots were often seen feeding on Wild Mustard Seeds.

Wedge-tailed Eagles, including several nests in operation, Whistling Eagles, and a brief sighting of a Black Falcon were the only Hawks seen.

Many flocks of Emus, with up to twenty-four birds in each, were observed feeding on dry lake-beds and on the first day a mother emu with young was sighted. No Mallee Fowl were seen, but four working mounds were located amongst the Mallee Scrub.

The Chestnut Quail-Thrush was seen scratching about near these mounds. Two species of nocturnal birds - the common Boobook and the Tawny Frogmouth were heard at night, the latter continuing its monotonous call into the early hours of the morning.

These two nocturnal birds complete a list of fifty-two species, which were noted within a radius of four miles around our camp, situated on the North bank of Lake Brimin near the Wonga Hut.

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OUR EARLY FLORA AND FAUNA

By L. W. Elms

In such a rapidly developing State as Victoria, it is of interest to learn something of the nature of our Flora and Fauna before they were disturbed by white man. A recently published book entitled "The Voyage of the Investigator", by K.A. Austin, enables us to gain such a glimpse through the eyes of Captain Matthew Flinders.

Having been to Port Jackson, and in company with his friend George Bass in a whaleboat, discovered Bass Strait as far west as Westernport Bay in 1798, Flinders returned to England. On 20th July, 1801, he was sent out again, in charge of "INVESTIGATOR", to circumnavigate Australia, and it was not until 9th June, 1803, that he again entered Port Jackson with this task completed.

On 25th April, 1802, "Investigator" was standing off the Heads, with Flinders gazing at the inland mountain tops of the You Yangs, and - "a small opening with a large extent of water visible within." Thinking it was Westernport he sailed through, but soon realized his mistake, and found afterwards that this bay had been discovered only ten weeks previously by Lieutenant John Murray in "LADY NELSON", and had been named Port Phillip by him.

He also named Arthur's Seat and Swan Bay, but Flinders at that time knew nothing of this.

Flinders and his scientists spent six days in making a thorough examination of the Port, grounding "Investigator" on shoals twice whilst doing so.

On April 27th, a small party climbed Arthur's Seat. To the east he sighted Westernport, and to the west he sighted and named "Indented Head".

They found many traces of the presence of natives, such as fireplaces, waddies, and heaps of oyster shells, but they saw no actual natives there.

The botanist, Robert Brown, made many entries in his diary regarding 96 species of plants, and also of birds, animal life, rocks and soil, etc. He referred to large Banksia trees, also

Exocarpus cupressiformis, (Native Cherry), and Mimosa, whilst of the birds, Psittacus Banksii, and Merops carunculatus were mentioned.

On the beach trochus shells and mussels were noted, and the party dined that evening on large oysters. Ducks and swans were plentiful, and were shot to augment their dwindling rations. They also caught a shark measuring 10 ft. 9 ins. in length, "and of very large girth".

Flinders sent Lieutenant Fowler with "Investigator" back to a place inside the Heads, and he himself set out in a rowing boat with a small party for four days of exploration.

First they went north as far as where Mornington now stands, and then went due westerly across the bay to Indented Head to camp overnight. In the morning they saw some aborigines who were shy at first, but later came to the boat without hesitation to exchange presents.

Flinders noted that they seemed to know the effect of firearms. They shared lunch with the natives, from whom they then parted on friendly terms.

Rowing westwards, towards the present site of Geelong, they failed to find the outlet to the sea which they had anticipated, so they steered across to the northern shore where they dined on some ducks they had shot, before camping for the night.

On May 1st, 1802, Flinders and three others set off on foot at dawn, "over a low plain covered with small-bladed grass, but almost destitute of wood, and with a clayey and shallow soil". At the foothills they entered a wood, and an emu and a kangaroo were seen. They reached the top of what he named "Station Peak" at 10 o'clock, from where they saw the full extent of the port and approximately charted it.

To the north they saw Mt. Macedon - "bearing N.11 deg.E, eleven leagues distant, and so far the country was low, grassy, and very slightly covered with wood. At three in the afternoon, we reached the tent, much fatigued, having walked more than twenty miles without finding a drop of water". They rowed back to Indented Head where they camped for the night, and returned to the

"Investigator" next day. On the way he sounded part of West Channel, and shot some swans on Swan Pond, as he named it.

In their absence, Surgeon Bell and a Mr. Good spent a night ashore and found several new plants. They shot some new birds and saw a dingo, and at the entrance to Swan Pond they found several native camp sites, with cockle shells, fish bones and crayfish shells in the ashes of the campfires. They were also interested to find "pieces of bark with the sides turned up, supposedly for carrying water which was not to be found in that neighbourhood. They would not contain more than a pint and a half".

Flinders sailed from Port Phillip on 3rd May, 1802, and later reported to Governor King that - "The country around Port Phillip had a pleasing, fertile appearance, fit for agricultural purposes, except for the sandy peninsula to Point Nepean where the vegetation was little better than brushwood. Indented Head had an appearance particularly agreeable, with green grass and small scattered trees. In the woods are kangaroo, the emu or cassowary, paroquets and a variety of small birds. The mud banks are frequented by ducks and black swans and the usual sea fowl.

The range of the thermometer was between 61 and 67 degrees, and the climate appeared to be as good as could be desired."

These observations on the country influenced Governor King in his decision to form a settlement in Port Phillip Bay, and Melbourne was founded in 1835.

What a change has taken place since then!

Now there are no aborigines and no kangaroos in the locality, and it could be a lesson to us to value more the few areas of natural history which are still left with us to enjoy.

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"AT RANDOM"

PLATYPUS CENSUS

In the last issue, Mr. L. W. Elms suggested a census of the Platypus by collection of casual observations recorded in "At Random". He cited two observations - 1952: Barwon River at Winchelsea; and 1956: Buckley's Falls. Since these were published, several other readers have contributed their sightings.

Last summer, a platypus was seen in the creek near Barunah Plains in the Western District; I was told this by Mr. John Mahoney of Belmont.

Mr. Geoff Carr has intimated his interest in the survey particularly in the river section between Fyansford and Batesford along the Moorabool; he included the following sightings:

Sept.19th, 1964: One platypus observed for about a quarter of an hour swimming and feeding in the Moorabool, north of Fyansford. Time - about 12 a.m.

Sept.26th, 1964: One platypus observed swimming in the Barwon about half a mile upstream from Buckley's Falls.

Mr. W. Anderson enquired of a property owner near the Dog Rocks if there were any platypuses in the Moorabool here. The answer was "Yes, many." Closer inspection may give a more accurate count.

Mr. T. Fletcher remembered a platypus in the open channel east of Fyans Swamp near Collins Mill. This was several years ago, about 1955; the occurrence was reported to the late Percival J. Wood who for many years wrote nature notes in the Geelong Advertiser under the initials "P.J.W."

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In November, over 2,000 school children from Geelong and District Schools were taken to the You Yangs, shown nests, and given lectures on various birds. All this was hard work by the organisers, and the day was well received by most of the children. But you can't please everyone - One young man was overheard by his teacher remark to his friend, "I don't know about you, Craig, but I'd rather be back at school doing 'rithmatic!"

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These are your pages to record your observations, comments and thoughts. Contributions should be forwarded to the Editor, Geelong Naturalist.

TORQUAY BUSHLAND

By Eric, Roger & Howard Bellchambers

During the school holidays last September, we stayed for a week at Torquay and with my father went walking through the bush several days.

We were mainly looking for birds and saw many - some building nests, some with eggs and others with young. In the bush, along Coombes Road, we saw Yellow Robins, White-fronted Chats, Scarlet Robins, Grey Thrushes, Yellow-tailed and Buff-tailed Thornbills and Grey Currawongs nesting. Also a Rufous Fantail and Golden Whistlers and Red-browed Finches, in addition to other common species. We consider it a very good patch of bushland.

Whilst walking through this bush we found also the skeletons or bones of two wallabies - one on either side of the road and were most interested. They had not been dead that long as there was still fur on the bones. There was no flesh, and the bones were starting to break so we brought the skull of one home with us to show at school. We think these two wallabies probably came across from those at Anglesea and became stranded.

Next we found two bee hives - one in a tree and the other in a log lying on the ground.

In this area last year we saw a Spiny Anteater burrowing as fast as it could into the ground.

We used to go along Grossman's Road but the land has been cleared.

We hope this last piece of bushland will not suffer the same fate, but it is fast being cut down and soon these birds and animals will have nowhere to live.

Wild flowers - including orchids - are to be found there, and there is plenty of white and pink heath and wattles.

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